

A Comparison of Leading Palm Oil Certification Standards Applied in Indonesia

Towards Defining Emerging Norms of Good Practices



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Authors: Betsy Yaap and Gary Paoli

The full report of this study is available on the Daemeter website (www.daemeter.org).

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ACRONYMS

AMDAL	Analisis Mengenai Dampak Lingkungan (EIA)
BMP	Best Management Practice
CBD	Convention on Biological Diversity
EIA	Environmental Impact Assessment
EU	European Union
FFB	Fresh Fruit Bunches
FFI	Flora and Fauna International
FPIC	Free, Prior, and Informed Consent
GAP	Good Agricultural Practices
GHG	Greenhouse Gas
GOI	Government of Indonesia
HCV	High Conservation Value
HGU	Hak Guna Usaha (secured land cultivation rights)
HRC	Human Rights Commission
ILO	International Labour Organization
IPM	Integrated Pest Management
ISCC	International Standard for Carbon Certification
ISPO	Indonesian Sustainable Palm Oil
IUCN	International Union for Conservation of Nature
IUP (-B, -P)	Ijin Usaha Perkebunan (planting permit)
ITUP	Established Company Permit
KA	Kerangka Acuan (Scope of Work)
NGO	Nongovernmental Organization
OH&S	Occupational Health and Safety
P&C	Principles and Criteria
POME	Palm Oil Mill Effluent
PPP	Plant Protection Product
SAN	Sustainable Agriculture Network
RKL/RPL	Monitoring and management documents for plantations \geq 3,000 ha
RSPO	Roundtable on Sustainable Palm Oil

RTE	Rare, Threatened, or Endangered Species
SEIA	Social and Environmental Impact Assessment
SEMS	Social and Environmental Management System
SIA	Social Impact Assessment
SOP	Standard Operating Procedure
TNC	The Nature Conservancy
ToR	Terms of Reference
UKL/UPL	Environmental management/monitoring plan
UN	United Nations
WWF	World Wildlife Fund

EXECUTIVE SUMMARY

Indonesia's regulatory framework governing palm oil is comprehensive in scope and complex in form. More than a dozen ministries, administrative agencies and legislative bodies with authority over land use and licensing, industry and trade, labor, and cooperatives have enacted hundreds of laws, regulations, decrees and guidelines applicable to oil palm. In a bid to strengthen enforcement of this framework, in 2011 Indonesia's Ministry of Agriculture decreed the mandatory Indonesian Sustainable Palm Oil (ISPO) standard. Under ISPO, all producers must bring operations into compliance with the standard by 2014, or face risk of losing their license to operate. By design, ISPO criteria are strongly aligned with existing legal and regulatory requirements, and for this reason it is sometimes referred to as Indonesia's "legality standard" for palm oil.

The emergence of ISPO to complement voluntary third-party certification schemes has invigorated discussions about "legality" of palm oil in Indonesia. These discussions are sometimes contentious, due to a tendency for stakeholder groups to galvanize around one sustainability standard over others, often at the expense of understanding the broad commonalities among them. Such debate inhibits cooperation to identify and overcome shared challenges faced by sustainability efforts on the ground, especially impediments tied to legal and regulatory requirements.

This study contributes to ongoing discussions concerning the interplay between certification and legal compliance in promoting sustainable palm oil. We compare four leading standards:

- Roundtable on Sustainable Palm Oil (RSPO)
- Indonesian Sustainable Palm Oil (ISPO)
- International Standard for Carbon Certification (ISCC)
- Sustainable Agriculture Network (SAN)

The review presents a structured, in-depth comparison of environmental and social requirements of each standard, highlighting areas of commonality and difference, and drawing attention to where Indonesia's regulatory system supports or presents challenges to compliance with sustainability criteria. Our aim is to support future efforts at shaping a consensus definition of legal and sustainable palm oil, by (a) describing emerging "norms of good practice" embodied in certification schemes and (b) providing context to benchmark Indonesia's regulatory framework. In this way, the report is conceived as a framework document to inform future multi-stakeholder discussions on certified sustainable palm oil, including ongoing cooperation between RSPO and ISPO to seek opportunities for mutual support.

To make the comparison accessible, a theme-based approach has been used, in which certification criteria are organized around 15 themes reflecting priorities identified in discourse on palm oil in the media, academic press, international and national forums, blogs, and other sources. The full version of the report (available on www.daemeter.org) is divided into two parts: main body and appendices. The main body provides (a) background on each standard, (b) in-depth comparisons by theme, and (c) a summary scoring system to indicate relative strength and clarity of requirements across standards. In the main report, tables are also provided for each theme to summarize principles, criteria, indicators, guidance, and instructions relevant to each theme in each standard. This is taken directly from text of the

standards, and where tables are extensive, they're placed in hyperlinked appendices (with abridged summaries retained in the main report). This volume does not contain the appendices.

We found that the four standards cover a similar range of topics, but the depth, breadth, and level of detail in addressing key issues varies widely. For some key criteria, the standards differ in the specificity and extent of restrictions imposed, partly reflecting goals of the different initiatives behind each standard. For example, RSPO sets strong, ambitious, well-defined requirements across a far-ranging set of social and environmental issues, but shows its greatest compromise around the controversial topics of deforestation, peat land development, and GHG emissions. Such compromise was necessary to bridge divergent interest groups within RSPO membership, given its consensus mode of decision-making. ISCC by contrast lays out very strict provisions on deforestation and peat, reflecting the intent for ISCC certified plantations to comply with the EU Renewable Energy Directive. SAN also has very strict rules on clearance of natural areas and extensive social provisions, both reflecting a smallholder focus of the standard. In comparison to other standards, ISPO emerges as more straightforward, streamlined, and practical, reflecting its applicability to industry as a whole and ties to legal compliance. Overall ISPO provides less detailed guidance than other standards, however, raising challenges for consistent application across Indonesia's diverse geographies.

Another key difference among standards concerns minimum requirements for compliance to achieve certification. RSPO and ISPO require full compliance with all criteria in order to be certified, or an approved time-bound plan for addressing minor non-compliances. Under SAN and ISCC, only a subset of specified criteria must be met for certification. SAN requires compliance with 50% of criteria within each principle, and 80% of total applicable criteria, except for 'critical' criteria, which must be fulfilled. ISCC divides its criteria into 'major' and 'minor' musts, where all major and at least 60% of minor musts shall be met to achieve certification. These differences caution against drawing conclusions about the impact of different standards on the ground, when not all provisions are mandatory under all schemes.

Compliance with ISPO is mandatory in Indonesia, and thus holds greatest potential to improve industry practices as a whole. This is a major advantage of ISPO over other standards. Yet, the comparison suggests that for most environmental issues reviewed, ISPO carries less stringent requirements than RSPO, which in turn is less restrictive than ISCC and SAN, especially on deforestation and peatland development. On social themes, ISPO outlines brief requirements and provides less detailed guidance across many key areas. ISCC and SAN impose weaker requirements in regard to community benefits and consent for land release, especially in contrast to the RSPO's strong provisions on these topics. On employment themes, SAN is weaker compared to ISPO and especially RSPO and ISCC, which provide detailed requirements on human rights, child access to education, women, and indigenous people. SAN was strongest, however, in its treatment of human welfare issues.

A quick-view, high-level scoring of standards is provided in the study, capturing overall features of how the standards compare. But the reader is warned that treatment of most themes by most standards is nuanced and requires reading the fuller comparison for a

deeper understanding of how issues are addressed in each standard. Main summary points from the comparison include:

- Overall, RSPO has the most clearly worded and thoroughly explained principles, criteria, indicators, guidance, and requirements for compliance with environmental provisions; two weaknesses concern flexibility in RSPO's treatment of deforestation and peat land development.
- ISCC and SAN are very strong in their treatment of environmental concerns, whereas ISPO is less restrictive and/or provides less detail.
- On social themes, RSPO again ranks most highly, reflecting broad consideration of social issues facing the industry and communities affected by it.
- ISCC and SAN are weaker than RSPO for a handful of social themes reviewed, but in general also give robust treatment of social issues.
- ISPO's treatment of social issues is less comprehensive than other standards, due to omission of key topics (e.g., FPIC) and/or less detailed explanation of requirements for compliance.

Summary Table

Summary of how different themes are addressed in requirements of each standard. Standards are scored as: (1) strong and clear requirements (green shading), (2) issue is addressed but requirements are less clear (yellow), and (3) issue is not directly addressed and/or requirements are not clearly defined or comparatively lenient (red).

Themes and procedures	RSPO	ISCC	SAN	ISPO
Environmental				
Environmental Impact Assessment (EIA)	1	3	1	2
High Conservation Value (HCV)	1	3	3	2
Biodiversity Conservation (outside of HCV)	1	1	1	2
Greenhouse Gases (GHG)	1	1	1	1
Peatlands	2	1	1	2
Soil (other than peatlands)	1	1	1	1
Forest clearance	2	1	1	3
Riparian forests and buffers around water bodies	1	1	1	1
Agrochemicals	1	1	1	1
Water Conservation	1	1	1	1
Waste management	1	1	1	1
Social				
Social Impact Assessment (SIA)	1	1	1	2
Community benefits	1	2	2	1
Community consent and land acquisition				
A. Community consultation	1	2	2	2
B. Free and prior informed consent (FPIC)	1	3	3	3
C. Land rights and acquisition	1	2	2	2
D. Compensation	1	1	2	1

Themes and procedures	RSPO	ISCC	SAN	ISPO
E. Conflict resolution	1	1	1	1
Employment				
A. Contracts	1	1	1	3
B. Wages	1	1	1	1
C. Other conditions and benefits	2	2	2	3
D. Freedom of association and bargaining	1	1	1	1
E. OH&S	1	1	1	2
F. Living Conditions	1	1	1	2
G. Human rights	1	1	2	2
H. Forced labor	1	1	1	3
I. Child labor	1	1	1	2
J. Child access to education	1	1	2	2
K. Discrimination	1	1	1	1
L. Women	1	3	3	3
M. Indigenous people	1	3	3	1

Many facets of Indonesia’s legal and regulatory framework are strongly aligned with sustainability objectives embodied in the standards compared. Examples include well-defined requirements for pollution mitigation and monitoring, smallholder outreach and cooperative support, retention of riparian buffers, avoidance of steep slopes, and use of mechanical techniques (not fire) for land clearance. At the same time, some features of Indonesia’s framework are partially at odds with a number emerging ‘norms of good practice’ defined in sustainability standards. A selection of leading impediments include the following.

- 1) Companies are under increasing pressure to avoid deforesting land for new plantations. Suitable, degraded, low carbon lands are widespread across Indonesia, but spatial planning and land management provisions make it very difficult to bring these areas under cultivation.
- 2) Companies are also under increasing pressure to manage forest set-asides where licenses they acquire overlap with forest. Yet, where forest is zoned for agriculture under spatial plans, current regulations make it very difficult for companies to retain management authority over unplanted conservation set-asides within their plantations.
- 3) Companies are rightly being pressured to obtain Free, Prior and Informed Consent (FPIC) from communities before they operate, and to develop sound management plans to avoid and protect sensitive areas. At the same time, companies in Indonesia are required by law to develop large areas (covering thousands of hectares) within maximum four years from the date licenses are issued. This can make it difficult to perform meaningful FPIC with communities, to conduct detailed environmental surveys, and to establish plantations on the ground in accordance with management plans.

These regulatory impediments are widely acknowledged barriers to sustainability, even within government policy-making circles in Indonesia. This study highlights the need for poli-

cy improvements in these areas to align regulatory pressures with emerging norms of good practice defined in certification standards, as well as Indonesia's own Green Growth vision for the industry.

I INTRODUCTION

Indonesia's regulatory framework governing palm oil is comprehensive in scope but complex in form. More than a dozen ministries, administrative agencies and legislative bodies with authority over land use and licensing, industry and trade, labor, and cooperatives have enacted hundreds of laws, regulations, decrees and guidelines applicable to palm oil. Inadequate enforcement of this system has drawn strong criticism in the past, prompting Indonesia's Ministry of Agriculture to decree the mandatory Indonesian Sustainable Palm Oil (ISPO) standard in 2011. All producers are required to comply with this standard by 2014, or face risk of losing their license to operate. By design, ISPO criteria are strongly aligned with legal and regulatory requirements. For this reason, ISPO is sometimes referred to as Indonesia's "legality standard" for palm oil, analogous to the wood legality standard (SVLK) recently developed under Indonesia's Voluntary Partnership Agreement (VPA) with the EU.

The emergence of ISPO as a complement to existing third-party certification schemes has reinvigorated discussions about "legality" in Indonesian palm oil. These discussions are often contentious, due to a tendency for stakeholder groups to galvanize around competing sustainability standards (e.g., ISPO vs the Roundtable on Sustainable Palm Oil) at the expense of understanding the significant commonalities among them. Such debate inhibits cooperation to identify and overcome shared challenges faced by sustainability efforts on the ground, especially impediments tied to legal and regulatory requirements.

This report aims to promote broader understanding of these commonalities, by comparing four third-party certification standards pursued by palm oil companies in Indonesia:

- Roundtable on Sustainable Palm Oil (RSPO)
- Indonesian Sustainable Palm Oil (ISPO)
- International Standard for Carbon Certification (ISCC)
- Sustainable Agriculture Network (SAN)

The review presents a structured, in-depth comparison of the environmental and social requirements of each standard to highlight areas of commonality and difference among them. A secondary aim is to describe where provisions of these standards align with legal and regulatory requirements applicable to palm oil, drawing attention to facets of the framework that present challenges to certification.

Our aim is to support future efforts at shaping a consensus definition of legal and sustainable palm oil, by (a) describing emerging "norms of good practice" embodied in certification schemes and (b) providing context to benchmark Indonesia's regulatory framework. In this way, the report is conceived as a background document to inform future multi-stakeholder discussions on certified sustainable palm oil, including ongoing cooperation between RSPO and ISPO to seek opportunities for mutual support.

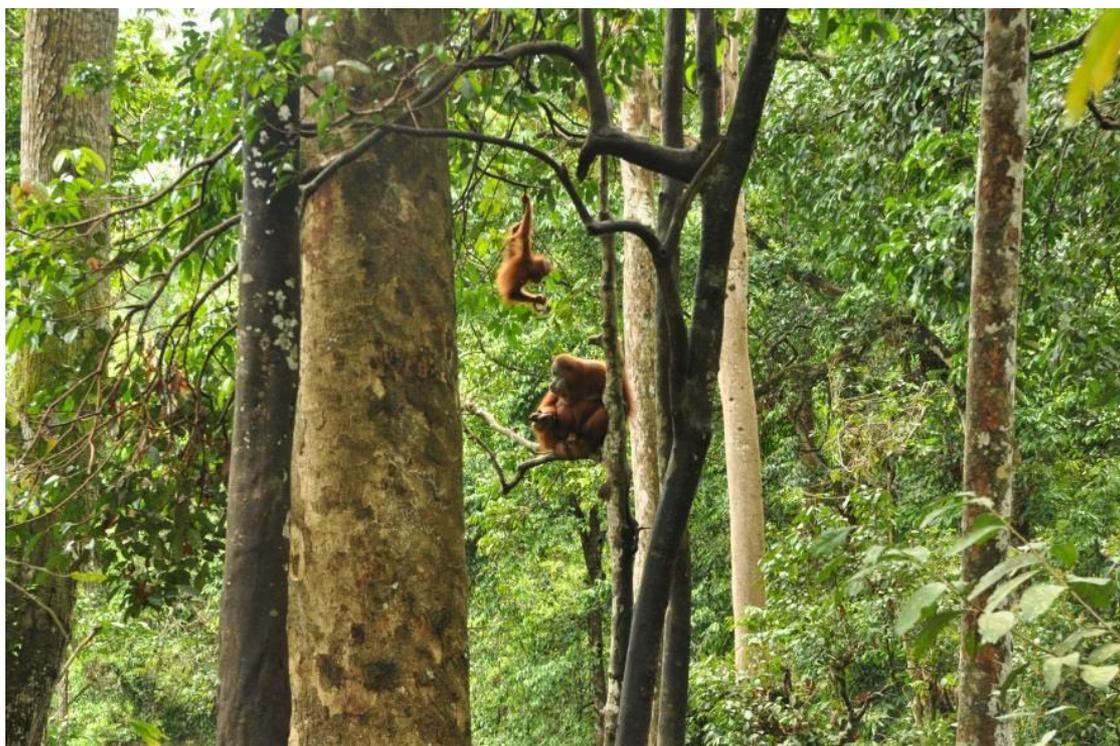
To make the comparison accessible, a theme-based approach has been used, in which certification criteria are organized around themes reflecting priorities identified in discourse on

palm oil in the media, academic press, international and national forums, blogs, and other sources. A total of 15 themes (plus 18 sub-themes) are examined.

Themes are grouped under environmental and social category headings, under which treatment of each theme by each standard is described. Throughout the text, tables are provided under theme headings summarizing the principles, criteria, indicators, guidance, and instructions relevant to each theme in the standards. This is taken directly from the text of the standards, and abridged summaries retained in the main text.

For each theme, the standards are scored based on the depth, detail, and stringency of requirements for compliance. Treatment of each theme is scored as: (1) provided strong and clear requirements (green highlight), (2) theme is addressed but requirements are not clear (yellow highlight), and (3) theme is not or barely mentioned and/or requirements are vague/comparatively lenient (red highlight). These rankings are listed in the first row of each table in the main text for each theme, and combined in a table in the Executive Summary.

In the background sections of this report that follow, a brief overview of the standards is provided (Section 2), followed by a description of certification procedures (Section 3), and a brief overview on how legal compliance is treated by each standard (Section 4). This is followed by two main sections of the report, comparing the Environmental and Social themes of each standard in Sections 5 and 6, respectively.



2 STANDARD STRUCTURE

All of the standards are organized under thematic ‘principles’ that contain numerous ‘criteria.’ Principles and criteria are structured differently across the standards, but cover a similar set of general themes: legality, environmental responsibilities, social responsibilities, and business practices (See Table 2.1). Although similar in title, the depth of discussion and instruction within criteria of each standard varies greatly and is the focus of this report. The report covers legal, environmental, and social aspects of the standards, but not criteria related to business practices.

On a macro level (comparison across principles), the greatest variation relates to inclusion (or exclusion) of directives on business practices and plantation management. For example, RSPO Principle 1 requires a commitment to transparency and ethical conduct in business operations and transactions. Some of the other standards also touch on this topic, but do not make it an explicit principle. Comparison at a principle level is less informative though. For example, SAN does not have an overarching principle on national legal compliance, yet its first criterion contains an overarching statement on such and SAN is one of the standards that most heavily refers to national law, with eight of its ten principles having criteria referring to legal compliance. This exemplifies differences in structure rather than content.

Criteria are the heart of the standards, with ISPO having the fewest (28) and SAN the most (100). As with principles, the number of criteria is partly a result of presentation, but it also reflects differences in the level of detail embodied in each standard, with SAN having numerous very detailed criteria, and ISPO generally providing fewer less detailed criteria. Organizationally, ISPO and ISCC also have sub-criteria in one and two of their criteria, respectively, whereas the other standards do not.

Beyond principles and criteria, RSPO and ISPO provide ‘indicators’ and ‘guidance’ for each criterion. These indicators describe the types of records or proof necessary to demonstrate compliance. The guidance sections provide additional instruction and interpretation of criteria. ISCC and SAN do not use the same structure of indicators and guidance. Rather, their principles are broken down into more numerous criteria with detailed explanations and guidance provided in paragraphs linked to each criterion. SAN also provides a separate interpretive guide for criteria deemed to merit further explanation.

Most of the standards also use additional reference documents to elaborate their requirements. For example, RSPO has numerous guidance documents on topics such as free and prior informed consent (FPIC), High Conservation Value (HCV) assessments, and best management practices on peatlands. ISCC’s criteria often have links to cross compliance with other ISCC standards and further definitions and explanations that relate directly to EU directives. ISPO relies implicitly on Indonesian laws and regulations to provide further detail on standard requirements (but in its final published version does not provide direct reference to laws and regulations relevant to each principle or criterion).

Other notable procedural differences in the standards include national interpretations and level of compliance. All of the standards, except ISPO (which is by definition a national

standard), allow for national or local interpretations of portions of their standard. RSPO and ISPO require full compliance with all criteria, or an approved time-bound plan to meet all criteria. SAN and ISCC, on the other hand, only require a portion of their criteria to be met for certification – a subset of so-called mandatory criteria. SAN requires compliance with 50% of criteria within each principle, and 80% of all applicable criteria overall. ISCC divides its criteria into ‘major’ and ‘minor’ musts, whereby all major musts and at least 60% of minor musts must be met for certification. These differences complicate drawing conclusions about the relative strength of one standard versus another, because not all provisions are mandatory for compliance under all standards.



Table 2.1. A comparison of structure and grouping of principles in each standard under general themes related to sustainability

CATEGORY	RSPO	ISCC	SAN	ISPO
Overview				
Number of Principles & Criteria	8 Principles 43 Criteria	6 Principles 45 Criteria 59 Sub-criteria	10 Principles 100 Criteria	7 Principles 28 Criteria 15 Sub-criteria
Legality				
Legal Compliance	(2) Compliance with applicable laws and regulations	(5) Biomass production shall take place in compliance with all applicable regional and national laws and shall follow relevant international treaties.	(1) Social and environmental management system	(1) Licensing system and plantation management
Environmental				
Environment and Biodiversity Conservation	(5) Environmental responsibility and conservation of natural resources and biodiversity; (7) responsible development of new plantings	(1) Biomass shall not be produced on land with high biodiversity value or high carbon stock. HCV areas shall be protected. (2) Biomass shall be produced in an environmentally responsible way (includes soil, water and air protection and Good Agricultural Practices).	(1) Social and environmental management system; (2) ecosystem conservation; (3) wildlife protection	(3) Environmental management and monitoring
Best Agricultural Practices	(4) Use of appropriate best practices by growers and millers	(2) Biomass shall be produced in an environmentally responsible way (includes soil, water and air protection and Good Agricultural Practices).	(4) Water conservation; (8) integrated crop management; (9) soil management and conservation; (10) integrated waste management	(2) Technical guidelines for palm oil cultivation and processing
Social / Human Welfare				
Conditions for Workers	(6) Responsible consideration of employees and of individuals and communities affected by growers and mills	(4) Biomass production shall not violate human rights labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations.	(5) Fair treatment and good working conditions for workers	(4) Responsibilities to workers
Social responsibility to communities	(6) Responsible consideration of employees and of individuals and communities affected by growers and mills	(4) Biomass production shall not violate human rights labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations.	(1) Social and environmental management system; (7) community relations	(5) Social and community responsibility; (6) Strengthening community economic activities;

CATEGORY	RSPO	ISCC	SAN	ISPO
Occupational Health and Safety (OH&S)	(4) Use of appropriate best practices by growers and millers	(3) Safe working conditions through training and education, use of protective clothing and proper and timely assistance in the event of accidents	(6) Occupational Health and Safety	(4) Responsibilities to workers
Business Practices and Plantation Management				
Economic and financial growth	(3) Commitment to long-term economic and financial viability			(7) Sustainable business development
Continuous improvement	(8) Commitment to continuous improvement in key areas of activity		(1) Social and Environmental Management System	(7) Sustainable business development
Transparency	(1) Commitment to transparency			
Other Plantation Management		(6) Good management practices shall be implemented (Record system and engagement with sub-contractors.)	(1) Social and Environmental Management System	(1) Licensing system and plantation management

3 CERTIFICATION PROCEDURES

3.1 Unit of Certification

Certification bodies offer certification at different points in the supply chain. RSPO's Principles and Criteria for Certified Sustainable Palm Oil (CSPO) are applicable to mills (the certification unit) and their supply base. Under RSPO, the unit of certification is the mill and, depending on ownership structure, is registered under the name of the individual subsidiary itself or the holding company, whichever is registered as an RSPO member. RSPO strictly prohibits partial certification, requiring that all subsidiaries in which a holding company owns majority share must become certified (Table 3.1). RSPO also has a supply chain standard rooted largely in demonstrating ability to control and maintain a documented chain of custody for materials entering the supply chain (this standard is not included here). The RSPO standard for mills was formally adopted in 2007 and a revised version of the standard was approved in 2013. This revised version is reviewed here, and can be downloaded from the RSPO website (www.rspo.org). RSPO is currently the dominant certification system used by palm oil producers seeking third party certification.

ISPO certification is mandatory for any plantation or mill operating in Indonesia. The holding company can be the unit of certification for plantations and mills if the holding company can ensure that all of the plantations and mills use the same management system and the holding company takes full responsibility for their compliance (Lampiran 1: 19/Permentan/OT.140/ 3/2011, Section 2.7(2)). The original and still current ISPO standard published in 2011 is available on line (www.ispo-org.or.id/). Originally, all palm oil companies licensed to operate in Indonesia as of February 2011 were required to become certified against ISPO requirements by December 2014. As of January 2014, 150 of Indonesia's estimated 1500 palm oil companies had registered to initiate ISPO certification audit, and 41 had received certification. Recent statements reported in the media indicate government is considering extending the 2014 deadline, due in part to capacity limitations for implementing certification audits and decisions. ISPO does not explicitly prohibit partial certification of subsidiaries owned by a holding company, but since all companies operating in Indonesia are required to become certified, partial certification is, by default, prohibited under ISPO.

ISCC certifies any entity within the supply chain (farm/plantation, mill, trader, refiner, manufacturer), each with its own applicable standard (or set of standards). The standard evaluated here is the widely applied ISCC standard for certifying production of biomass used for bioenergy production (ISCC 202 Sustainability Requirements for the Production of Biomass; downloadable here: www.iscc-system.org). ISCC is developing an ISCC Plus system, which is an integrated system for certifying complex production processes and supply chain structures that involve multiple commodities, their derivatives, and trade activities related to them (see here: www.iscc-system.org/en/iscc-system/iscc-plus/). ISCC certification is widely pursued by Indonesian palm oil producers seeking access to EU biofuels markets, especially those with older plantations that were fully established before 2008 (after which ISCC prohibits certification of plantations that cleared forest; see Section 5.7 below). ISCC

does not appear to make any statements about partial certification of subsidiaries owned by holding company.

The Sustainable Agriculture Network (SAN), in collaboration with the Rainforest Alliance, developed a standard for certifying farms (including plantations), and any on-site facilities associated with the farm, including its infrastructure, processing and packaging areas, conservation and housing areas, and workers affected by production activities. Off-site processing facilities must be covered by the Rainforest Alliance's traceability system. The SAN standard can be downloaded here (<http://sanstandards.org/sitio/>). The standard was first published in 2008 and is currently undergoing revision. The SAN system is widely used for chocolate, bananas, coffee, and other food crops; it is not yet widely used for oil palm (nine plantations are certified worldwide, all in South and Central America), and is being considered by some companies in Indonesia and Malaysia. Like ISCC, SAN does not make explicit statements about or prohibitions of partial certification (Table 3.1).

3.2 Governance & Certification Decisions

The procedures to assess compliance for certification vary among the standards, but in general share more in common than do content of the standards themselves (See Table 3.1).

In the case of RSPO, the organization sets a member-approved standard, but relies on accredited outside third parties (Certification Bodies) to assess compliance and issue a certificate. Accreditation of certification bodies is renewed annually, and is now carried out by an independent third party (Accreditation Services International).

Like RSPO, ISPO relies upon accredited third party certification bodies to conduct audits, but the ISPO Commission itself (not the CB) issues certificates based on reviews of audit reports and recommendations provided by the CB. The ISPO commission therefore maintains a high level of control over the entire certification process, from standard setting through to certification decisions.

The ISCC standard has strong links to other European Commission Standards and has a strong focus on a cross-compliance control systems whereby the Sustainability Requirements for the Production of Biomass (the standard reviewed here) for producers in other EU member countries only need to account for Principle 1 since Principles 2 to 6 are fulfilled by existing control systems. For Indonesia, cross-compliance is not applicable and all six principles need to be fulfilled and audited. As for RSPO, under ISCC compliance with the standard is evaluated and certificates issued by accredited third-party certification bodies.

SAN relies on accredited third parties to lead the verification and certification process, including determining applicability of each criterion to an individual farm/plantation, undertaking audits, and issuing certificates.

3.3 New Planting Procedure Timelines

Cut-off dates after which plantations are considered "new plantings," and for which specified criteria may apply, vary among the standards.

RSPO has a cut-off date of November 2007, after which new plantings should not replace primary forest or areas required for management to maintain HCVs. Areas cleared after this are unable to become certified unless an RSPO-approved compensation plan is developed (in line with its newly released guidance for compensation). RSPO enacted a subsequent cut-off in January 2010, after which new developments must complete a formal, transparent, public New Plantings Procedure announcement to demonstrate compliance with specified criteria before development commences (http://www.rspo.org/en/new_planting_procedure).

ISCC has a cutoff date of 1 January 2008, after which clearance of land with high carbon stock, peat lands, or high biodiversity value is prohibited.

SAN does not allow clearance of primary or secondary (logged or burned) natural forest after 1 November 2005. If farm management destroyed natural ecosystems between 1 November 1999 and 1 November 2005, then the impacts must be mitigated with set-asides on the farm as a possible mitigation measure.

ISPO does not have cut-off dates for applicability for any criteria.

3.4 Complaints Procedures

RSPO, ISPO and ISCC all have established complaint procedures, whereas for SAN no materials describing this could be obtained (Table 3.1). Details of the systems and timelines for resolution vary across the standards. In general, grievance mechanisms appear to be best defined for the RSPO system, and have undergone a process of evolution based on lessons learned over the past several years. RSPO provides on-line status updates and a relatively high level of transparency throughout the complaint resolution process.



Table 3.1. A comparison of processes, rules, & procedures for leading palm oil certification schemes

Subject Area	Aspect	RSPO	ISPO	SAN	ISCC
Audit Process	Independent accreditation of auditors?	Yes	Yes	Yes	Yes
	Who does accreditation?	Accreditation Services International	ISPO Commissions	SAN authorized certification bodies and subcontracted authorized auditors	Experienced external third parties. General requirements listed in ISCC EU 251- Requirements on Certification Bodies
	Frequency of update audits	Annually	Annually once mill is operational	Minimum once per year. Multiple types of audits: annual, verification (irregular), research (irregular, unannounced), and non-programmed (irregular, unannounced).	Annually
	Public summaries of audit reports	Yes; available on RSPO website.	No	No	No
	Formal public consultation required during audit process?	No (beyond consultations required for data collection)	Not mentioned	No; only in standards development and decision-making. Unclear role in the audit process.	No
Complaint System	Is there a complaint system?	Yes; well defined complaint registry and resolution process	Yes	Not mentioned	Yes; complaints, appeal, and arbitration process.
	Timeline for follow-up			N/A	Yes; 6 months
	Mechanism for independent investigation	Process is lead by RSPO grievance panel, details of independent investigation are tailored to the case, designed in	Not mentioned	Nothing listed beyond SAN authorized certification bodies and subcontracted authorized auditors.	Only in “critical cases” will the arbitration board consult an independent expert.

Subject Area	Aspect	RSPO	ISPO	SAN	ISCC
		consultation with involved parties			
	Transparency in updates	Yes	Not mentioned	Not mentioned	Arbitration process and meetings are documented but do not seem to be publicly available.
Rules of Certification	Are all subsidiaries of a parent company required to become certified?	Yes; all companies must become certified, partial certification is not allowed	All companies with mills and plantations in Indonesia are required to become certified	Depends on various farmer group administrator models: farm organizations, farm with product suppliers, multiple farms of a single owner, traders and suppliers, federation of groups, etc.	Varies
	Minimum % ownership for certification to apply	Majority	Majority	N/A	N/A
	Time-bound plan	Members are now required to submit a time-bound plan for achieving group wide certification	All companies must become certified by end of 2014 (Note: there is discussion of extending this date)	N/A	N/A
	Smallholders must become certified?	Yes	Yes (in future, standard not yet developed)	Yes; many of the standard's sustainable practices also apply to small farmers.	No
	Any requirements for 3 rd party suppliers?	Depends on which supply chain model(s) the company is using for their certified palm oil.	N/A	No; a farm may buy products from third party suppliers and acts as a group administrator and assumed responsibility for developing and managing the internal management system (IMS). Additionally, "those portions of land inside the farm that are leased to third parties, if noncompliance with one or	No

Subject Area	Aspect	RSPO	ISPO	SAN	ISCC
				more critical criteria is suspected. Upon such suspicion, the auditors may verify compliance of the operations of this leased land with the Critical Criteria of the SAN standards.”	
Threshold for Certification	Must comply with all P&C?	Yes	Yes	<p>No; farms must comply with at least 50% of applicable criteria in each principle and at least 80% of total applicable criteria. Although, full compliance with “critical criteria” is mandatory for certification.</p> <p>Major non-conformity is compliance with <50% of criterion requirements. Minor non-conformity is compliance with equal or >50% of criterion requirements, but less than 100%. Minimum overall score for a farm to achieve certification is 80%.</p> <p>Group administrators must also demonstrate gradual increase in its overall minimum score: 85% of the total applicable criteria in the second regular audit and at least 90% from the third audit onwards.</p>	All major non-conformities must be resolved the latest 40 days after the date of audit. Any non-conformity of ISCC Principle 1 are regarded as major non-conformity. At least 60% of the minor musts need to fulfill ISCC requirements, otherwise it will be regarded as a major non-conformity.

Subject Area	Aspect	RSPO	ISPO	SAN	ISCC
	If not, how does it work? e.g. minor vs major non-compliances	Non-conformances must be addressed within 3 months of the audit before achieving certification; 1 month for follow up audits after achieving initial certification.			

4 LEGAL COMPLIANCE

All four of the standards have principles and/or criteria that require compliance with regional, national, and international laws or agreements. RSPO and ISCC standards adopt a blanket coverage approach, with a principle on legal compliance mandating that all laws, regulations, and agreements must be followed. ISPO makes explicit mention of specific national laws for which compliance must be demonstrated and has general statements in various sections stating the necessity for compliance with relevant rules and regulations, but has no requirements for international treaties (Table 4.1). SAN falls in-between these two approaches.

RSPO requirements for legal compliance are the most explicit (Table 4.1), with a principle on legality (P2) and a criterion requiring “compliance with all applicable local, national and ratified international laws and regulations” (C2.1). RSPO also provides an appendix listing social and environmental treaties applicable to countries that have signed them, including the Convention on Biological Diversity (CBD), International Labour Organization (ILO) core conventions, and UN Guiding Principles on Business and Human Rights among others. It also provides indicators for compliance that follow international guidance on specific issues, e.g., pesticide use.

ISCC has a similarly all-encompassing principle for legality and criterion making this requirement explicit, but it does not provide a specific list of treaties to be adhered. Its social and labor criteria closely mirror core ILO standards but this similarity is not made explicit.

SAN has a non-critical¹ criterion (C1.1) for compliance with national laws but because it is non-critical, the criterion is not binding for compliance audit purposes. This weakens the criterion to a form of guidance for companies but numerous references are made throughout the standard regarding requirements for compliance with applicable laws. With regard to international treaties, the standard makes reference to the United Nations’ Universal Declaration of Human Rights, Children’s Rights Convention, and ILO conventions, as well as prohibitions on use of agrichemicals prohibited by international agreements. However, only some of these references are part of “critical” criteria.

The development of criteria under ISPO was driven initially by the goal to align its provisions with Indonesia’s legal framework as closely as possible. Strictly speaking, however, it is not a “legality standard” as such (and as often stated). Compliance with specific legal procedures for licensing and developing a plantation (Principle 1) are made explicit but there is no overarching principle requiring legal compliance (as in RSPO), and the majority of criteria referencing legality use general wording requiring a company to operate in accordance with current laws, rules, and/or regulations (e.g., *sesuai ketentuan yang berlaku*). Although Indonesia is a signatory to many international treaties and conventions, the standard does not make reference to compliance with them.

¹ As noted, SAN requires compliance with 50% of criteria within one principle, and 80% of the total applicable criteria. ‘Critical criterion’ requires mandatory compliance.

One curious feature of ISPO in regards to legality is that while the final version of the standard published as part of *Permentan No. 19/2011* does not include any direct references to legal or regulatory requirements relevant to each criterion, an earlier draft version of ISPO circulated in May 2010 did include such references, as well as indication of the penalties and punishments potentially imposed by GOI for proven violations. Such references were later removed from the final published version of ISPO, which makes it very difficult for non-experts to associate specific laws or regulations with a given ISPO criterion. The formal explanation provided for removing these references is that their inclusion would have made it more difficult to revise ISPO criteria in the future without first changing the law, regulation, or decree associated with it in the original standard. Merit of this explanation aside, removal of any reference to laws or regulations that underlie many ISPO criteria has in practice eliminated much of the detailed guidance on requirements for complying with them. The result is that while a mandatory ISPO system holds greater potential than other certification schemes to reach industry as a whole, the standard lacks detailed guidance in some critical areas that could make it difficult to apply the standard uniformly across the country.



Table 4.1. Principles and criteria pertaining to compliance with national laws & regulations and international treaties

Legal Compliance	RSPO	ISCC	SAN	ISPO
Relevant provisions	<p>Principle 2 - Compliance with applicable laws and regulations</p> <p>Criterion 2.1 - There is compliance with all applicable local, national and ratified international laws and regulations.</p>	<p>Principle 5 - Biomass production shall take place in compliance with all applicable regional and national laws and shall follow relevant international treaties.</p> <p>Criterion 5.2 - There is awareness of, and compliance with, all applicable regional and national laws and ratified international treaties. (Major must)</p>	<p>Principle 1 - Social and environmental management system</p> <p>Criterion 1.1 - The farm must have a social and environmental management system according to its size and complexity of its operations that contains the necessary policies, programs, and procedures that prove compliance with this standard and respective national legislation binding for social, labor, and environmental aspects on farms - whichever is stricter.</p>	<p>Principle 1- Licensing system and plantation management: This principle outlines sequential legal steps in the licensing process that a company must follow and demonstrate compliance.</p> <p>Various criteria in Principles 2-4 also require compliance with applicable laws and regulations relating to the individual criteria. This would require compliance with local and national laws and regulations, but compliance with international treaties is not stated, implying it may be understood to be outside of the scope of ISPO.</p>

5 ENVIRONMENTAL THEMES & PROCEDURES

This section compares environmental themes of the four standards. A “theme-based” approach was taken to enable a more direct, intuitive comparison of the commonalities and differences in content on key environmental issues without being encumbered by structural differences among the standards. The following themes and procedures were chosen because they are central to environmental management, acknowledged as priorities among stakeholders and addressed to some level in all of the standards:

- Environmental Impact Assessment
- High Conservation Value
- Biodiversity Conservation (outside of HCV)
- Green House Gases (GHG)
- Peatlands
- Soil (other than peat)
- Forest Clearance
- Riparian Forests
- Agro-chemicals
- Water Conservation
- Waste Management

For each theme, a summary of the findings is provided with an accompanying table. The summary begins with a textbox highlighting the most striking similarities and differences, followed by additional text providing a more detailed comparison. In the explanatory tables, the multi-faceted principles and/or criteria addressing each theme are shown and then subdivided into discrete sub-topics specific to each theme. For example, the Environmental Impact Assessment (EIA) table includes rows that compare which type of oil palm developments require an EIA, what the EIA should cover, and accreditation necessary to undertake a credible EIA. In most cases below, the principles, criteria, indicators, guidance, and instructions in each standard are cut and pasted word-for-word into the table for convenience (rather than requiring the reader to refer back to separate standard documents). Occasionally text from the standards is paraphrased or summarized in the tables.

5.1 Environmental Impact Assessment

RSPO has the most comprehensive EIA requirements, followed by SAN. ISCC and ISPO have comparatively vague EIA requirements, relying largely on requirements to follow national rules and regulations to guide this process.

Notable features of RSPO EIA requirements include an emphasis on independent experts, stakeholder involvement, and legitimate potential for rejection of a project based on Analisis Mengenai Dampak Lingkungan (AMDAL) results. These are all part of the AMDAL process as defined by Indonesian law, yet at present they are not routinely part of current practice. Explicitly listing these requirements in the standard appears to be an effort by RSPO to move the AMDAL process beyond its current reputation as an administrative prerequisite, and support its transformation into a more rigorous process that supports industry wide sustainability to determine with greater credibility and transparency if, where, and how plantation development shall take place.

All four standards include criteria that require an environmental impact assessment (EIA) or similar environmental analysis and associated management and monitoring within their criteria. In Indonesia, the EIA is called *Analisis Mengenai Dampak Lingkungan*, or AMDAL (Table E1). Under Indonesian law, the scope (*Kerangka Acuan, KA*) of an AMDAL is drafted by the proponent (and their hired EIA consultants) and then approved by the government audit commission during public hearing. The scoping process must involve relevant experts and interested members of the public, and should be undertaken as part of the feasibility study process (*Permen LH No 8/2006*). Preparation of the AMDAL in accordance with the approved KA must involve affected communities, environmentalists, and/or other concerned parties affected by EIA decisions. Transparency leading up to implementation of the AMDAL is required (*Pasal 26, UU No. 32/2009*). Stakeholders also have the right to appeal content of the AMDAL document, including recommended impact mitigation measures. HCV and GHG emission impacts are not included within the required list of items to consider in completion of the AMDAL. Management and monitoring are a core part of the AMDAL, with specific management and monitoring documents (RKL/RPL for plantations $\geq 3,000$ ha). National accreditation is mandatory for AMDAL consultants (*Pasal 28, UU No. 32/2009*). Indonesian law also requires a review of the AMDAL at least once every five years (referred to in *Pasal 8, Permen LH No 11/2006*), but does not explicitly require a review upon replanting.

When an explicit criterion requiring an EIA is lacking in the standards, EIA requirements are either embedded within a criterion on environmental management or triggered by provisions in other principle(s) or criteria. For example, a requirement for legal compliance triggers completion of EIA/AMDAL on developments $\geq 3,000$ ha and a management and monitoring plan for smaller areas.

RSPO provides the most detailed guidance on what an EIA should entail, including a list of topics to cover. Importantly, RSPO also emphasizes stakeholder consultation during the EIA process, which further reinforces existing Indonesian requirements. No other standards include such explicit requirements for transparency. Also unique to RSPO is the inclusion of HCV and GHG concerns within the scope of an EIA, which go beyond the nationally required

AMDAL process in Indonesia. Regulations governing implementation of the AMDAL do not require GHG or HCV, but they do not prohibit inclusion of other topics of investigation as defined within the *Kerangka Acuan* noted above. The RSPO global standard also requires an EIA for areas 500 ha or larger, but defers to the National Interpretation, which currently follows the legal cut off of 3,000 ha in Indonesia.

A further distinctive feature of the RSPO is the requirement that the management authority of scheme smallholder partnerships (usually *inti* plantation companies) are responsible for conducting an EIA on associated smallholder plantation lands developed by the company. Under Indonesian law, if scheme smallholder lands fall within the company's area where land cultivation rights have been secured (*Hak Guna Usaha*, or HGU), an EIA of smallholder plantations is required by law, but it is not required if scheme smallholder lands fall outside the HGU.

Additionally, RSPO stipulates (a) Terms of Reference (ToR) for the EIA, (b) the EIA itself should be undertaken by independent, accredited experts (consistent with Indonesian law), and (c) that the environmental and social impact assessments (and associated ToRs) should be undertaken by different parties. Under RSPO rules, the National Interpretation working group is tasked with identifying relevant expert accreditations for credible assessments. RSPO (like SAN) requires time-bound management and monitoring plans with nominated individuals responsible for implementation, and promotes adaptive management to fine tune mitigation measures over time. RSPO also requires an EIA upon replanting.

Under ISCC, explicit requirements for EIA only cover new buildings, drainage systems, and other construction or systems (Criterion 2.1). The terminology is unclear whether this applies to an entire plantation or just infrastructure. Yet, Principle 5 requires compliance with applicable regional and national laws, which in Indonesia includes an EIA prior to plantation development for plantations > 3,000 ha. ISCC Principle 1 provides more specific requirements on land cover types that cannot be cleared (e.g., high biodiversity and high carbon stock lands) and Principle 2 details more specific criteria on environmental management (e.g., soil and water). Both contain elements that would be covered in an EIA but as noted are not packaged explicitly in this form, nor is there a clear emphasis on stakeholder consultation in developing acceptable management. The standard does not stipulate minimum size or area thresholds where an EIA would be required. Assessor accreditations or impact mitigation requirements for smallholders are not mentioned.

As with RSPO, SAN stipulates more rigorous requirements for EIAs. It requires an EIA for new production areas, new infrastructure, and any major changes in current production or processing systems (Criterion 1.6). The EIA must be in accordance with applicable laws and include a monitoring and evaluation procedure (Criteria 1.6-1.8). The standard requires a formal Social and Environmental Management System for all operations (regardless of size) to ensure effective management and monitoring of impact mitigation measures. As with RSPO, this system must include time-bound activities, with responsible personnel identified and policies and procedures to support their implementation (Criteria 1.1 and 1.2). No size or area threshold for an EIA is stipulated; this is left to the auditor to determine. Accreditation for EIA consultants is not mentioned.

ISPO requirements for EIA are comparatively brief and lacking in detail, emphasizing that operations much follow legal requirements: (a) having an EIA (AMDAL) prior to operation for areas $\geq 3,000$ ha (*Permen LH 11/2006*), or environmental management/monitoring plan (UKL/UPL) for areas $< 3,000$ ha; (b) developing the area in accordance with these documents; and (c) reporting to the appropriate agencies as required by law. Consistent with national laws, EIA assessors must also be accredited.



Table E1. Environmental Impact Assessment (EIA)

EIA	RSPO	ISCC	SAN	ISPO
Score	1	3	1	2
Main Provisions	<p>Criterion 5.1 - Aspects of plantation and mill management, including replanting, that have environmental impacts are identified, and plans to mitigate the negative impacts and promote the positive ones are made, implemented, and monitored to demonstrate continual improvement.</p> <p>Criterion 7.1 - A comprehensive and participatory independent social and environmental impact assessment is undertaken prior to establishing new plantings or operations, or expanding existing ones, and the results incorporated into planning, management and operations.</p>	<p>Criterion 2.1 - Environmental impact assessment</p> <p>Sub-criterion 2.1.1 - Environmental aspects are considered if planning buildings, drainage etc. (Major)</p>	<p>Principle 1 - Social and environmental management system</p> <p>Criterion 1.1 - The farm must have a social and environmental management system according to the size and complexity of its operations that contains the necessary policies, programs, and procedures that prove compliance with this standard and respective national legislation binding for social, labor, and environmental aspects on farms—whichever is stricter.</p> <p>Criterion 1.6 - The potential social and environmental impacts of new works or activities must be evaluated. These include the expansion of production areas, the construction or installation of new infrastructure, or major changes in production or processing systems. The evaluation must be carried out before the initiation of any changes or new work in accordance with applicable laws or, in their absence, based on technically accepted and recognized methods.</p>	<p>Criterion 3.2 - Responsibilities related to environmental impact assessment AMDAL, UKL, and UPL: Plantation management must fulfill their obligations regarding AMDAL, UKL, and UPL in accordance with applicable legislation.</p>

5.2 High Conservation Value

The HCV approach, as defined by internationally recognized standards, is adopted and defined clearly only in the RSPO standard. ISPO also requires HCV identification but does not clearly define required procedures for identifying HCVs, which weakens the mitigated impact. SAN does not use the term HCV but its definitions of “natural ecosystems” and “high value ecosystems,” and the protections they’re afforded under the standard, show a close parallel to HCVs’ environmental values (HCV 1-4). ISCC is the most unorthodox in their use of the term HCV, where it appears in the title of Principle 1, but is defined as primary forests, formally protected areas, high biodiversity grasslands, and high carbon stock areas. This definition does not align with established conventions under FSC or the HCV Resource Network.

With regard to HCV management, ISPO, SAN, and ISCC all have clearer and stricter requirements than RSPO - HCV areas (or their equivalent for SAN) may not be cleared. RSPO requires that HCVs be maintained or enhanced, but minimum requirements for “maintaining” HCVs are subjective and this puts some HCV areas potentially at risk of conversion. Consequently, some important areas likely to be considered no-go areas under SAN or ISCC could, in theory, potentially be converted under RSPO. For ISPO, outcomes are likely to be even more variable and will depend on the HCV definitions adopted and identification process employed.

High Conservation Values, or HCVs, are defined by the HCV Resource Network as “biological, ecological, social or cultural values which are considered outstandingly significant or critically important, at the national, regional or global level.” HCVs are divided into six categories, four environmental and two social. In this section we describe HCV requirements in regards to the four environmental values which focus on: (1) biodiversity values, (2) landscape level natural areas, (3) rare, threatened, and endangered ecosystems, and (4) ecosystem services.² HCV defines a process to identify the presence of one or more HCV(s) and the development of management and monitoring recommendations to maintain them. The concept is a key provision of several sustainability and certification standards applied in production landscapes, including the Forest Stewardship Council (FSC) (where the approach originated) and the RSPO.

In the context of oil palm, requirements for HCV are most explicit in RSPO, for which HCV is the key biodiversity safeguard. RSPO has explicit requirements for HCV identification to follow a globally recognized approach (HCV Toolkit), and prohibits conversion of any areas deemed necessary for management to maintain values deemed present in the plantation. ISPO also requires HCVs (*Nilai Konservasi Tinggi*) be identified, defining HCVs as areas with a primary function of protecting environmental sustainability including natural resources, man-made resources, and areas with historical and cultural value. This bears some resemblance to global definitions of HCV, but ISPO does not provide explicit guidance for HCV identification or make reference to an HCV Toolkit, leaving this open to interpretation. ISPO wording prohibits conversion of any HCV areas, and in this sense is more restrictive than RSPO (which permits partial conversion provided values can be maintained through active

² HCV social values are discussed in Section 6 of this report.

management). Yet, in practice, HCV requirements under ISPO provide comparatively weak protections due to a lack of clear definitions and no guidance on the identification process.

ISCC uses the HCV term in only one context—the title of Principle 1. As with ISPO, however, the term is not clearly defined and in fact implies a definition that differs from the established global definition (as well as that applied under RSPO). HCV in ISCC is defined as primary forests, conservation areas, high biodiversity grasslands, and high carbon stock areas.

SAN does not use the term HCV, yet the values encompassed in HCV are addressed in separate criteria in the standard, using the terms “natural ecosystems” and “high value ecosystems” instead of the standard nomenclature of HCV. Natural ecosystems are defined as “a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. Examples are aquatic ecosystems, such as streams, rivers, pools, ponds, lakes, lagoons, and other bodies of liquid water that exist naturally; wetlands, such as swamps, marshes, mangroves, or bogs; terrestrial ecosystems, such as primary and secondary forests, bush lands, grass lands, or other advanced natural succession stages without significant human disturbance for minimum 10 years” (*Source: Convention on Biological Diversity*). High value ecosystems are defined as “natural ecosystems of special importance to environmental conservation, such as habitat that enables the reproduction of endemic and endangered species or hosts viable wild animal or plant populations; provision of ecosystem services such as watershed protection in serious circumstances; or rare ecosystems. Examples are primary and secondary forests, bush and grasslands, paramo, streams, rivers, pools, lakes, lagoons, swamps, marshes and bogs. Each SAN representative provides further local interpretation to this definition - considering local biophysical conditions.” Together, SAN definitions for natural ecosystems and high value ecosystems closely resemble concepts embodied in HCV1-4 under RSPO and as defined globally. Under SAN, areas identified under these criteria may not be cleared.

Indonesian law also does not use the term HCV but it is becoming increasingly familiar to local governments, NGOs (e.g., WWF, FFI, and TNC), and companies making voluntary efforts to identify and protect HCV areas required for certification. The term has been used in provincial regulations (e.g., Central Kalimantan), regional GHG emissions reduction plans (e.g., RAD-GRK for East Kalimantan), and in Forest Zone release permits issued by the Ministry of Forestry, but HCV is not currently part of Indonesian law. EIAs and associated management and monitoring plans are intended to cover environmental values, some of which share much in common with facets of HCV, but the scope, structure, rigor, and transparency can differ greatly between the two, depending on implementation (see section 3.1 above).

Table E2. High Conservation Value (HCV)

HCV	RSPO	ISCC	SAN	ISPO
Score	1	3	3	2
Main Provisions	<p>Criterion 5.2 - The status of rare, threatened, or endangered species and other High Conservation Value habitats, if any, that exist in the plantation or that could be affected by plantation or mill management, shall be identified and operations managed to best ensure that they are maintained and/or enhanced.</p> <p>Criterion 7.3 - New plantings since November 2005 have not replaced primary forest or any area required to maintain or enhance one or more High Conservation Values.</p>	<p>Principle 1 - Biomass shall not be produced on land with high biodiversity value or high carbon stock. High Conservation Value areas shall be protected.</p>	<p>There is no mention of High Conservation Value, but as discussed in text above, there is some overlap in SAN's use of the terms 'natural ecosystem' and 'high value ecosystem', shown in Criterion 2.2.</p> <p>Criterion 2.2 (<i>Critical Criterion</i>) - From the date of application for certification onwards, the farm must not destroy any natural ecosystem. Additionally, from 1 November 2005 onwards no high value ecosystems must have been destroyed by or due to purposeful farm management activities.</p>	<p>Criterion 3.5 - Identification and protection of areas with high conservation value: Plantation managers must identify HCV areas that consist of areas that have a primary function of protecting environmental sustainability that includes natural resources, man-made resources, and national historical or cultural value and not convert these areas to oil palm.</p>

5.3 Biodiversity Conservation (outside of HCV)

SAN affords the strongest biodiversity protection by not allowing for conversion of any natural areas. RSPO has the next strongest biodiversity measures, relying heavily on the HCV process. This allows for some conversion of HCV areas provided they are deemed not necessary for management to maintain recorded HCVs. ISCC does not apply a species-based approach such as those covered in RSPO and SAN, but rather focuses conservation efforts on defined habitat types considered likely to support high levels of biodiversity. These include primary forest, protected areas, wetlands, and grasslands. ISPO appears to provide the least stringent overall protections for biodiversity in land zoned for agriculture, relying on the EIA and undefined HCV safeguards to protect biodiversity.

The four standards differ markedly in their treatment of biodiversity (Table E3). RSPO's use of HCV to augment standard EIA requirements for biodiversity conservation makes it one of the most all-encompassing standards in its treatment of biodiversity. HCV requires the status of rare, threatened, or endangered (RTE) species and HCV habitats be identified, mapped, managed, and monitored to maintain or enhance species and habitats. In practice, application of HCV in most production landscapes (oil palm included) does allow for loss of individual RTE species and HCV habitats, so long as such clearance is justified and approved as part of the consultation process (e.g., on the logic that the population of concern will be maintained).³ Thus, while HCV approach to identifying important biodiversity values is robust, the management requirement to "maintain or enhance" HCVs versus strictly protect them weakens biodiversity protection. This compromise creates opportunities for optimizing conservation and production objectives in production landscapes,⁴ but also has been criticized as a back-door means of enabling conversion of forest or other sensitive areas when not rigorously applied. Uniquely, RSPO requires disciplinary measures for company employees that capture, collect, harm, or kill RTE species. It also addresses responsibilities of the company to actively manage conservation set-asides identified during the HCV assessment, or at least prove that efforts to do so have been made.

ISCC's biodiversity conservation approach largely focuses on identification of areas and habitats that are likely to support high levels of biodiversity, rather than applying a species-based approach. As noted already, in Criterion 1.1 the standard states restrictions on development in (1) primary and largely undisturbed forests, (2) protected areas, and (3) areas identified for species and habitat protection under international agreements or lists (such as IUCN). Under limited conditions, it allows for biomass production from the latter two categories, but only if it can be proven that production of raw material does not interfere with the intended protection purpose of the area. This allows for some level of discretion, but in the

³ It should be noted, however, that under the HCV Toolkit for Indonesia each individual of an IUCN listed Critically Endangered species must be maintained, making it difficult in principle to justify clearance of any HCV habitat for such species.

⁴ Noting that IUCN listed threatened species are likely to exist in all except the most severely degraded landscapes in Indonesia, requiring strict protection of all areas supporting one or more such species would not be practical in areas zoned for production purposes.

case of palm oil it is highly unlikely that this exception would apply. ISCC also prohibits clearance of highly biodiverse grasslands and all wetlands and peatlands (Criteria 1.2-1.4). The protection afforded to these habitats under ISCC is much stronger than the HCV provisions of RSPO because ISCC has more clear-cut guidance prohibiting conversion. On the other hand, by not including species-based protection (e.g., RTE species existing outside the areas noted above, such as in logged over forest), or any explicit requirements for conservation set-asides to be maintained and managed within plantations, the standard can be seen to provide narrower protections than RSPO.

As noted above, SAN imposes the strictest biodiversity measures of all four standards, with principles on Ecosystem Conservation and Wildlife Protection according strict protection to biodiversity. Under SAN, it is mandatory to identify, protect, and restore all existing natural ecosystems within the farm through a conservation program. Additional provisions and cut off-dates are declared under SAN: no clearance of natural ecosystems post 1 Nov 2005 and mandatory mitigation and rehabilitation of natural habitats converted between 1 Nov 1999 and 1 Nov 2005. The standard also aims to make certified plantations a safehouse for wildlife, by promoting agroforestry systems, vegetative buffers (riparian areas, natural buffers between crops and settlements, and buffers between crops and areas for natural conservation), and maintenance of natural areas within the farm. Restrictions on hunting, capturing, extracting, and trafficking wild animals are part of a *critical criterion*,⁵ with additional non-critical criteria promoting wildlife friendly management actions.

Overall, ISPO appears to offer the least stringent provisions for biodiversity compared to other standards. For habitat conservation, the standard largely relies on the AMDAL, which varies widely in quality. Like RSPO, ISPO also includes HCV provisions, but as noted above the requirements are not clearly defined and, importantly, do not make reference to the HCV Toolkit for Indonesia as the basis for assessment. The ISPO approach to protection of flora and fauna requires species identification, an SOP outlining measures for their protection (without guidance on what this must cover), and proof of efforts to socialize protection aims and activities. The standard does not make explicit requirements for management or prevention of hunting of RTE or protected species, apparently relying on the AMDAL process for this and related matters.

None of the standards employ a mitigation hierarchy approach to managing biodiversity impacts, nor do they mention the “no net loss” or “net positive gain” approaches embodied in the IFC’s Performance Standards or the Equator Principles.

⁵ Refer to Section 2 *Standard Structure* for an explanation of critical versus non-critical criteria in the SAN standard.

Table E3. Biodiversity Conservation (outside of HCV)

Biodiversity Conservation (outside of HCV)	RSPO	ISCC	SAN	ISPO
Score	1	1	1	2
Main Provisions	<p>Principle 5 - Environmental responsibility and conservation of natural resources and biodiversity</p> <p>Criterion 5.2 - The status of rare, threatened, or endangered species and other High Conservation Value habitats, if any, that exist in the plantation or could be affected by plantation or mill management, shall be identified and operations managed to best ensure that they are maintained and/or enhanced.</p> <p>Criterion 4.5 - Pests, diseases, weeds, and invasive introduced species are effectively managed using appropriate Integrated Pest Management techniques.</p> <p>Criterion 7.3 - New plantings since November 2005 have not replaced primary forest or any area required to maintain or enhance one or more High Conservation Values.</p> <p>Criterion 2.1 - There is compliance with all applicable local, national, and ratified international laws and regulations.</p>	<p>Principle 1 - Biomass shall not be produced on land with high biodiversity value or high carbon stock. High Conservation Value areas shall be protected.</p> <p>Criterion 1.1 - Biomass is not produced on land with high biodiversity value. ISCC defines 'high biodiversity value' land as: Forest land (primary forests and other natural areas that are covered with native tree species and do not show clearly visible indications of human activity and the ecological processes are not significantly disturbed); Areas designated by law or by the relevant competent authority to serve the purpose of nature protection (including protected elements of the landscape, e.g., riparian buffers, as well as areas that have been acknowledged by the European Commission as areas for the protection of rare, threatened or vulnerable ecosystems or species); or Areas for the protection of rare, threatened, or endangered ecosystems or species (as recognized by international agreements or included in lists drawn up by international agreements or included in lists drawn up by intergovernmental organisations or the International Union for the Conservation of Nature) (EU Directive 2009/28/EC). (Major)</p>	<p>Principle 2 - Ecosystem conservation</p> <p>Principle 3 - Wildlife protection</p>	<p>Criterion 3.4 - Conserving biodiversity: Plantation managers should maintain and preserve biodiversity in areas that are managed in accordance with its plantation permit.</p> <p>Indicator 3.4 - Existence of an SOP identifying measures for the protection of flora and fauna in and around the plantation Maintenance of a list of the flora and fauna in and around the plantation, before and after development Records of efforts to socialize these</p> <p>Guidance 3.4 - Plantation managers implement community outreach about the importance of biodiversity and conservation efforts. Flora and fauna survey is conducted in the plantation.</p>

Biodiversity Conservation (outside of HCV)	RSPO	ISCC	SAN	ISPO
Main Provisions		<p>Criterion 1.2 - Biomass is not produced on highly biodiverse grassland. Grassland of high biodiversity is defined as grassland, which in the absence of human intervention would:</p> <p>(1) remain grassland of intact natural species composition, ecological characteristics and processes (natural grassland); or</p> <p>(2) not remain grassland and which is rich in species and not degraded (artificial grassland), unless there is evidence that the harvesting of the biomass is necessary to preserve its grassland status. (Major)</p> <p>Criterion 1.3 - Biomass is not produced on land with high carbon stock. (Major)</p> <p>Criterion 1.4 - Biomass is not produced on land that was peatland in January 2008 or thereafter (Article 17(5) of the Directive 2009/28/EC). (Major)</p>		<p>The company makes efforts to conserve flora and fauna (such as maintaining buffer zones, making posters, warning signs, etc.).</p>

5.4 Greenhouse Gases (GHG)

All four standards address greenhouse gas (GHG) emissions. None specifies a maximum level of gross emissions permissible or makes explicit reduction targets, but all require steps be taken to reduce GHG emissions. RSPO requires companies to calculate their total emissions footprint, prepare time bound plans for emission reduction and encourages avoidance of high carbon stock lands (including peat lands) for new plantings as part of mitigation efforts. ISCC explicitly prohibits clearance or use of high carbon stock lands, making land-based emissions requirements straightforward but very restrictive. SAN puts forward more general requirement for implementing practices to reduce GHGs and increase carbon sequestration, and outlines a suite of recommended practices that can be implemented to reduce emissions. ISPO is similar in style and content to SAN but requires a slightly more systematic approach through formulation of an SOP for GHG mitigation and documented proof of implementation. ISPO also requires inventory of GHG sources, measurement of mitigation actions to reduce them, and tracking of land cover change arising from plantation development, but does not specify whether and how these are to be reported.

RSPO requirements for monitoring and reporting GHG emissions are the most rigorous among the four standards (Table E4). It is the only standard with an explicit requirement for companies to calculate total emissions footprint (using RSPO's PalmGHG calculator or similar tool) and report these to RSPO (but see ISPO below). In 2016, RSPO will also require members to make emissions data public. ISPO requires inventory of emissions sources, formulation of an emissions reduction SOP, suggests recommended actions (in the form of guidance) to be included within such SOP, and requires documented efforts to implement the SOP.

ISPO does not outline explicit requirements for calculation or reporting emissions, but includes provisions to (a) inventory emission sources, (b) measurements related to emission mitigation actions, and (c) documenting and reporting temporal changes in land use within the plantation beginning two years before the onset of and throughout planting. ISPO also encourages use of renewal energy sources and specifically methane capture in the processing of POME, a leading source of emissions in most plantations. ISCC and SAN do not have monitoring or reporting requirements specific to GHG emissions, but require actions that have direct and indirect impact on GHG levels. ISCC explicitly prohibits clearance or use of high carbon stock lands, making requirements to mitigate this source of land-based emissions straightforward but highly restrictive. Like ISPO, SAN requires effort be made to implement practices that reduce net GHG emissions (including actions to increase carbon sequestration), and outlines a recommended suite of such practices that could be implemented.

Currently, the legal framework governing palm oil development is generally silent on issues pertaining to emissions reduction. Indonesia's national action plan (RAN-GRK) and many provincial plans (RAD-GRK) to reduce GHG emissions by 26% over 'business as usual' projections" targets emission sources directly impacted by oil palm (e.g., improved forest and peatland management, waste processing, better agricultural practices, industrial energy effi-

ciency, and transport efficiency). However, regulations designed to address these emissions sources have not been enacted, with the possible exception of the 2011 Inpres on a two-year moratorium for new licenses in primary forest and peat lands. No doubt the moratorium slowed palm oil expansion into some high carbon stock areas (especially peatlands), a benefit that will continue given its renewal in early 2013 for another two-year period. Another regulation potentially affecting emissions from palm oil is the Ministry of Agriculture regulation issued in 2009 that prohibits clearance of peatlands >3 m deep (*Permentan* No.14/2009), and requires maintenance of high water levels to reduce peat oxidation. ISPO requirements for licensing and plantation management reinforce both the moratorium and the *Permentan*, but overall actions to reduce GHG emissions by the palm oil industry are largely pursued on a voluntary basis—no laws have been passed or regulations issued designed specifically targeting emission reductions from the sector.



Table E4. Greenhouse Gases

Greenhouse Gases (GHG)	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 5.6 - Plans to reduce pollution and emissions, including greenhouse gases, are developed, implemented, and monitored.</p> <p>Criterion 7.8 - New plantation developments are designed to minimise net greenhouse gas emissions.</p>	<p>Criterion 1.3 - Biomass is not produced on land with high carbon stock. (Major)</p> <p>Criterion 1.4 - Biomass is not produced on land that was peatland in January 2008 or thereafter (Article 17(5) of the Directive 2009/28/EC). (Major)</p>	<p>Criterion 10.6 - The farm must implement practices to diminish its emissions of greenhouse gases and increase carbon dioxide sequestration. Such practices include soil cover management, planting of trees and other perennial vegetation, proper sourcing and management of fertilizers and fuels, management of effluent ponds and manure, proper waste management, use of clean technologies, improvement of energy efficiency, reduction in tillage, and participation in local or regional initiatives aimed at greenhouse gas reduction and carbon dioxide sequestration.</p>	<p>Criterion 3.6 - Greenhouse gas mitigation: Plantation business managers must identify the sources of GHG emissions.</p>

5.5 Peatlands

ISCC strictly prohibits planting on peat. SAN prohibits planting on wetlands of any form that require drainage canals. ISPO allows planting on peat but only under specified conditions; peat may not be developed where >70% of the concession is >3 m deep, or where peat substrate is immature or underlain by quartzitic sand or acid sulphate soil. RSPO encourages members to make voluntary commitments to avoid peatlands but does not prohibit planting on peat. However, RSPO also requires compliance with national laws and regulations, and ISPO criteria for peat are based on government regulation Permentan 14/2009, so in practice RSPO requirements for peat default to those of ISPO. Where peatlands are developed for oil palm, ISPO requires adverse impacts be avoided and water levels maintained at specified levels; RSPO requires implementation of BMPs for peatland management (Table E5).

ISCC has the clearest, most restrictive requirement for peatlands, prohibiting any development on areas with >30 cm peat depth. Exceptions are allowed where no drainage system is required, or where drainage canals were already fully established before January 2008 and drainage is neither deepened nor expanded after this date. This effectively excludes from ISCC certification most oil palm developments on peat in Indonesia, except where they were established pre 2008. SAN does not make explicit reference to peat, but prohibits the destruction of wetlands or the conversion of natural forest; these provisions would effectively prevent certification of oil palm on peatlands.

RSPO requires mapping of peat soils within the plantation and states that extensive planting on peat soils should be avoided. It also encourages members to make voluntary commitments to avoid planting of any kind on peat. If limited planting is made on peat, RSPO requires management to prevent adverse impacts to the larger ecosystem and implementation of BMPs for plantations on peat (see Table E5). In contrast to ISCC and SAN, RSPO requirements are less robust, allowing for varied interpretation of ‘extensive’ and ‘limited’, which is not clearly defined, and relying on voluntary commitments of its members. In 2012, RSPO published a manual titled “RSPO Manual on Best Management Practices (BMPs) for Existing Oil Palm Cultivation on Peat” (2012) which addresses subsidence and GHG emissions issues that affect sustainability of oil palm on peat, as well as a BMP manual “for the management and rehabilitation of natural vegetation associated with oil palm cultivation on peat.” Members with oil palm on peat are expected to apply these practices on their plantations.

ISPO allows for planting on peat but only where requirements of *Permentan 14/2009* are met. Under this regulation, peat may not be developed where >70% of the concession is >3 m deep, or where peat substrate is immature or underlain by quartzitic sand or acid sulphate soil (irrespective of depth). Peat depth must be mapped in the concession and development carried out only where compliant with these provisions. SOPs for peatland management must be in place, requiring maintenance of water levels at 50-60 cm, among other aspects of plantation management to avoid adverse impacts.

Table E5. Peatlands

Peatlands	RSPO	ISCC	SAN	ISPO
Score	2	1	1	2
Main Provision	<p>Criterion 7.4 - Extensive planting on steep terrain, and/or marginal and fragile soils, including peat, is avoided.</p> <p>Criterion 4.3 - Practices minimise and control erosion and degradation of soils.</p> <p>Criterion 4.4 - Practices maintain the quality and availability of surface and ground water.</p>	<p>Criterion 1.4 - Biomass is not produced on land that was peatland in January 2008 or thereafter (Article 17(5) of the Directive 2009/28/EC). (Major)</p>	<p>Criterion 9.5 (<i>Critical Criterion</i>) - New production areas must only be located on land with the climatic, soil, and topographic conditions suitable for intensity level of the agricultural production planned. The establishment of new production areas must be based on land use capacity studies that demonstrate long-term production capacity. The cutting of natural forest cover or burning to prepare new production areas is not permitted.</p> <p>Criterion 2.1 (<i>Critical Criterion</i>) - All existing natural ecosystems, both aquatic and terrestrial, must be identified, protected, and restored through a conservation program. The program must include the restoration of natural ecosystems or the reforestation of areas within the farm that are unsuitable for agriculture.</p> <p>Criterion 2.2 (<i>Critical Criterion</i>) - From the date of application for certification onwards, the farm must not destroy any natural ecosystem. (See Table E5 for complete text of this criterion.)</p> <p>Criterion 2.6 - Aquatic ecosystems must be protected from erosion and agrochemical drift and runoff by establishing protected zones on the banks of rivers, permanent or temporary streams, creeks, springs, lakes, wetlands, and around the edges of other natural water bodies. Distances between crop plants and aquatic ecosystems as indicated in Appendix 1 must be respected. Farms must not alter natural water channels to create new drainage or irrigation canals. (See Table E5 for complete text of this criterion.)</p>	<p>Sub-criterion 2.1.5 - Planting on peatlands: Oil palm planting on peatlands can only be done by taking into account the characteristics of the peatland as not to destroy ecosystem functioning.</p>

5.6 Soil (other than peatlands)

The standards are similar in their requirements for soil management: all require management plans and/or SOPs to maintain soil quality and reduce and control erosion (Table E6). For erosion, only RSPO and ISPO provide slope restrictions, with ISPO limiting planting on slopes $\geq 40\%$ (as per Indonesian law) and RSPO on slopes $\geq 36.4\%$ (20 degrees). Uniquely, RSPO provides restrictions on the extent of planting that can happen on specific soils that it identifies as marginal or fragile; the other standards leave this open to interpretation. Otherwise, each standard tends to emphasize different elements of soil management.

RSPO requires use of Good Agricultural Practices (GAP) to minimize and control erosion and degradation of soil by use of ground cover management, biomass recycling, terracing, and natural regeneration or restoration instead of replanting. Growers must prove they've done this by (1) SOPs reflecting GAP, including evidence that water, ground cover, and road management plans are in place, and (2) incorporating topographic information into planning and operations to guide drainage and irrigation systems, roads, and other infrastructure, including no extensive planting on steep terrain (20 degrees or more) or marginal or fragile soils (including peat). The global P&C defers to national interpretations to define 'extensive', 'limited', 'marginal', and 'fragile', but none currently exists in the Indonesian NI. In this case, marginal therefore includes peat of any depth, mangrove, seasonally inundated, sandy soils, low organic contents, and soils with potential for acid sulphate. 'Extensive' areas are >10 ha and more than 1% of a new development (where 'limited' is defined as the reciprocal).

ISCC similarly requires use of GAP to conserve soil and avoid erosion, using cultivation techniques that reduce erosion risk. It is a major requirement that a management strategy is in place reflecting GAP for the prevention and control of erosion, drawing specific attention to fragile and problematic soils (e.g., sandy, low organic matter soils) and slopes above a certain limit (which ISCC states must be soil and climate appropriate but leaves unspecified in the standard). Also of note, the plantation must show evidence of reduced soil erosion with annual documentation. The production of fragile soil maps is a minor indicator of compliance. There is no specific mention of ground cover or road maintenance requirements.

SAN is less specific than RSPO and ISCC in its erosion control requirements. The standard requires a soil erosion and prevention program in which "activities must be based on the identification of soils affected by or susceptible to erosion, as well as soil properties and characteristics, climatic conditions, topography and agricultural practices for the crop." It could be inferred from this that SAN requirements are expected to offer a similar level or rigor as GAP requirements of RSPO and ISCC, but the lack of specificity in SAN raises uncertainty in this regard. In contrast to erosion, SAN has more detailed requirements for maintaining vegetative ground cover, including plans for expansion and management with an associated time for development. New developments must "only be located on land with the climatic, soil and topographic conditions suitable for intensity level of the agricultural production planned" and "be based on land use capacity studies that demonstrate long-term production capacity." Again, this runs parallel to what is expected in RSPO and ISCC but leaves criteria for judging compliance undefined.

Similar to the other standards, ISPO has an overarching requirement for land clearing and development in line with soil conservation principles, requiring land clearing in accordance with the EIA (which in principle would require measures for erosion control, but may not always in practice) with land clearing SOPs and records as indicators of compliance. SOPs for conservation of areas with high erosion potential and records of these actions are also indicators of meeting the standard requirements. ISPO provides guidance on the use of drainage systems and terracing as well as the establishment of conservation areas in accordance with government provisions. As per Indonesian law, planting on slopes of $\geq 40\%$ is not allowed. ISPO also places a greater emphasis and guidance for erosion control in riparian areas, prohibiting their conversion (without distance specifications) and requiring their replanting if damaged, unless palms are already >4 years old (in which case rehabilitation should take place in the next planting cycle). Four different ISPO criteria refer to use of ground cover to reduce erosion and soil degradation.



Table E6. Soil (other than peatlands)

Soil (other than peatlands)	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Principle 4 - Use of appropriate best practices by growers and millers</p> <p>Criterion 4.2 - Practices maintain soil fertility at, or where possible improve soil fertility to, a level that ensures optimal and sustained yield.</p> <p>Criterion 4.3 - Practices minimise and control erosion and degradation of soils.</p> <p>Principle 7 - Responsible development of new plantings</p> <p>Criterion 7.2 - Soil surveys and topographic information are used for site planning in the establishment of new plantings, and the results are incorporated into plans and operations.</p> <p>Criterion 7.4 - Extensive planting on steep terrain, and/or marginal and fragile soils, including peat, is avoided.</p>	<p>Principle 2 - Biomass shall be produced in an environmentally responsible way. This includes the protection of soil, water and air and the application of Good Agricultural Practices.</p> <p>Criterion 2.3 - Soil conservation and avoidance of erosion</p> <p>Criterion 2.4 - Soil organic matter and soil structure</p> <p>Criterion 2.6 - Use of fertilizer</p>	<p>Principle 9 - Soil management and conservation</p> <p>Criteria 9.1 - The farm must execute a soil erosion prevention and control program that minimizes the risk of erosion and reduces existing erosion.</p> <p>Criteria 9.2 - The farm must have a soil or crop fertilization program based on soil characteristics and properties, periodic soil, or foliage sampling and analysis, and advice from a competent and impartial professional or authority.</p> <p>Criterion 9.3 - The farm must use and expand its use of vegetative ground cover to reduce erosion and improve soil fertility; structure and organic material content, as well as minimize the use of herbicides.</p> <p>Criterion 9.4 - The farm must promote the use of fallow areas with natural or planted vegetation in order to recover natural fertility and interrupt pest life cycles.</p> <p>Criterion 9.5 - New production areas must only be located on land with the climatic, soil, and topographic conditions suitable for intensity level of the agricultural production planned.</p>	<p>Principle 2 - Application of technical guidelines for the cultivation and processing of palm oil</p> <p>Criterion 2.1.1 - Land clearing meets the principles of land and water conservation</p> <p>Criterion 2.1.6 - Plant maintenance</p> <p>Principle 3 - Environmental management and monitoring</p> <p>Criterion 3.1 - Obligations of plantations that own a mill: Planters with mills must implement environmental management and monitoring obligations in accordance with applicable rules and regulations.</p> <p>Criterion 3.7 - Conservation of areas with high erosion potential: Plantation managers must undertake land conservation and avoid erosion in accordance with applicable rules and regulations.</p>

5.7 Forest Clearance

Forest clearance restrictions vary widely among the standards. SAN and ISCC have the strictest requirements to avoid forest clearance, ISPO has the most lenient, and RSPO is intermediate. SAN does not allow for clearance of natural forest, which by its own definitions includes both primary and secondary (logged or burned) forest. If an area seeking certification is part of a landscape that was previously forest, SAN also requires the area to be managed as an agroforestry landscape in line with specified criteria. ISCC provides blanket protection for primary forests for its biodiversity value and protection to secondary and highly degraded forests for its carbon stock value. Such degraded forest is defined very conservatively, and offers protection to all but the most severely degraded forms of secondary forests, including those typical of disturbed landscapes throughout Indonesia (Table E7). With RSPO, forest clearance is permitted provided legal requirements are met (same as ISPO) and HCV areas are maintained (see HCV section above). ISPO allows forest clearance provided it is zoned for agriculture, it is allowed under the EIA, and necessary permits have been obtained from government. Forest areas can also be afforded protection by ISPO if they are identified as HCV areas (see HCV section) or required by the AMDAL.

SAN and ISCC have the strictest forest clearance requirements. SAN does not allow clearance of natural forest, primary or secondary (logged or burned), post 1 November 2005. If farm management destroyed natural ecosystems (including forest) between 1 November 1999 and 1 November 2005, the impacts must be mitigated, with set-asides on the farm suggested as a possible mitigation measure. Also, if the previous natural habitat of the area was once forest, the farm must be managed as an agroforestry system.

ISCC Principle 1 prohibits conversion of primary or largely undisturbed forests, and those of high biodiversity value per national or international designations. Disturbed (e.g., logged) forests are not covered in Criterion 1.1 but are protected under Criterion 1.3, which prohibits clearance of land with high carbon stock after 1 January 2008.

RSPO requirements of forest clearance are intermediate, prohibiting conversion of primary forest but relying on HCV assessment to identify non-primary (disturbed) natural forests that meet high conservation value requirements and trigger protection. The extent to which RSPO places restriction on clearance of logged or cleared and regrown (secondary) forests therefore depends heavily on the outcome of HCV assessment recommendations concerning the management area required for maintaining HCVs present. In many cases in Indonesia (but not all), various forms of logged forest are allowed for conversion without breaching RSPO requirements, and in such cases, RSPO is often criticized for providing weak protections against forest conversion. RSPO requirements for avoiding HCV management areas came into effect in November 2007. Where companies cleared areas after this date without prior HCV assessment, RSPO is developing guidelines for members to develop plans to compensate for these past losses (in accordance with certification requirements).

ISPO requirements regarding forest conversion follow Indonesian law. This means forest clearance is allowed where (a) it is zoned for agriculture under spatial plans, (b) it is not recommended for conservation in the environmental impact assessment (AMDAL), and (c) all

necessary permits for clearance have been obtained. Indonesian law prohibits clearance of forests that are (a) designated for protection under the national moratorium (Inpres No.10/2011 and its extension under Inpres No.XX/2013) or other government laws or decrees, (b) located on peatland with a peat depth >3 m (see peat section), (c) on slopes of >40% (see soil section), or (d) part of hydrological buffers along rivers (50-100 m either side of rivers; see riparian forest section) or lakes or springs (200m radius).



Table E7. Forest Clearance

Forest clearance	RSPO	ISCC	SAN	ISPO
Score	2	1	1	3
Main Provisions	<p>Criterion 7.3 - New plantings since November 2005 have not replaced primary forest or any area required to maintain or enhance one or more High Conservation Values.</p>	<p>Criterion 1.1 - Biomass is not produced on land with high biodiversity value. (Major)</p> <p>Criterion 1.3 - Biomass is not produced on land with high carbon stock. (Major)</p>	<p>Criterion 9.5 (<i>Critical Criterion</i>) - New production areas must only be located on land with the climatic, soil, and topographic conditions suitable for intensity level of the agricultural production planned. The establishment of new production areas must be based on land use capacity studies that demonstrate long-term production capacity. The cutting of natural forest cover or burning to prepare new production areas is not permitted.</p> <p>Criterion 2.1 (<i>Critical Criterion</i>) - All existing natural ecosystems, both aquatic and terrestrial, must be identified, protected and restored through a conservation program. The program must include the restoration of natural ecosystems or the reforestation of areas within the farm that are unsuitable for agriculture.</p> <p>Criterion 2.2 (<i>Critical Criterion</i>) - From the date of application for certification onwards, the farm must not destroy any natural ecosystem. Additionally, from November 1, 2005 onwards, no high value ecosystems must have been destroyed by or due to purposeful farm management activities.</p>	<p>Criterion 1.1 - Licensing and certification: Planters must obtain permits and land titles.</p> <p>Criterion 1.3 - Plantation location: Plantation managers should ensure that the use of plantation land is in accordance with the provincial general spatial plan (RUTWP) or general regional spatial plan (RUTWK) as per applicable legislation or other policies in accordance with government or local government provisions.</p> <p>Criterion 3.7 - Conservation areas with high erosion potential: Plantation managers must preserve soil and avoid erosion according to applicable regulations.</p>

Forest clearance	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>If any natural ecosystems have been destroyed by or due to purposeful farm management activities between November 1, 1999 and November 1, 2005, the farm must implement the following analysis and mitigations:</p> <ul style="list-style-type: none"> a. Conduct an analysis of the ecosystem destruction to document the scope and ecological impact of the destruction. b. Develop a mitigation plan with advice from a competent professional that is consistent with applicable legislation and that compensates for the negative impact. c. Implement the activities of this mitigation plan including, for example, the set aside of a significant percentage of the farm area for conservation purposes. <p>Criterion 2.8 - Farms with agroforestry crops located in areas where the original natural vegetative cover is forest must establish and maintain a permanent agroforestry system distributed homogeneously throughout the plantations. The agroforestry system's structure must meet the following requirements:</p> <ul style="list-style-type: none"> a. The tree community on the cultivated land consists of minimum 12 native species per hectare on average. 	

Forest clearance	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>b. The tree canopy comprises at least two strata or stories.</p> <p>c. The overall canopy density on the cultivated land is at least 40%.</p>	
Definitions	<p>Primary Forest is a forest that has never been logged and has developed following natural disturbances and under natural processes, regardless of its age. Also included as primary, are forests that are used inconsequentially by indigenous and local communities living traditional lifestyles relevant for the conservation and sustainable use of biological diversity. The present cover is normally relatively close to the natural composition and arisen (predominantly) through natural regeneration. National interpretations should consider whether a more specific definition is required.</p>	<p>Forested areas: (a) >1 ha of contiguous forest >5 m tall with >30% canopy cover, or trees able to reach this <i>in situ</i>; (b) as above, but 10-30% cover and meeting a carbon stock threshold adequate to meet emission reduction minima described in the standard; (c) forest as per the national definition.</p>	<p>Natural ecosystems are a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (<i>Source: Convention on Biological Diversity</i>). This includes primary and secondary forests.</p> <p>High value ecosystems are natural ecosystems of special importance to environmental conservation, such as habitat that enables the reproduction of endemic and endangered species or hosts viable wild animal or plant populations; provision of ecosystem services such as watershed protection in serious circumstances; or rare ecosystems. Examples are primary and secondary forests, bush and grass lands, paramo, streams, rivers, pools, lakes, lagoons, swamps, marshes and bogs. Each SAN representative provides further local interpretation to this definition— considering local biophysical conditions.</p> <p>Destruction of ecosystems is defined as the significant direct or indirect disturbance of an ecosystem caused by a human being. For the case of terrestrial</p>	

Forest clearance	RSPO	ISCC	SAN	ISPO
			natural ecosystems, this includes tree logging, extraction of non-woody plants, burning, aspersion of herbicides or other pesticides, partial or complete conversion to agriculture land, etc.	

5.8 Riparian Zones and Buffers Around Water Bodies

All of the standards have requirements for maintaining vegetated riparian buffers along watercourses, but required buffer width and other provisions vary. ISCC and ISPO default to applicable national rules and regulations to define width requirements, while RSPO and SAN provide their own requirements. In the case of SAN, the slope of adjacent land and agrochemical application also influence required buffer width. Permanent water bodies, wetlands, and springs are addressed in all standards, except ISPO, which relies on adherence to national rules and regulation. Unfortunately, Indonesian rules and regulations on riparian buffers are numerous and often contradictory, making it difficult to ascertain legal requirements that would apply under ISPO and ISCC. The HCV Toolkit for Indonesia references an Indonesian forestry law requiring 50 m left-right side of a river < 30 m wide, 100 m left-right side for a river > 30 m wide and a 200 m radius around surface springs.

All of the standards require riparian vegetation zones be maintained and oblige companies to restore them if they are degraded by cultivation, but they vary markedly in width, timing of rehabilitation (where necessary), as well as other management requirements. RSPO states that in the absence of a national interpretation providing detailed guidance, permanent water courses of 1-5 m wide shall maintain a riparian buffer 10 m wide on both sides of a river, and 50 m wide for a river >5 m wide. The Indonesian HCV Toolkit refers to forestry laws on rivers, requiring 50 m either side of a river <30 m (with no minimum size stated), and 100 m for rivers >30 m wide. RSPO also requires compliance with national rules and regulations, opening the door to Indonesia's confusing mix of rules on riparian buffer requirements discussed further below (Table E8).

ISPO and ISCC require maintenance of riparian buffers but do not provide specific guidance for what must be maintained. ISPO requires compliance with national laws and regulations, which, as noted, is confusing in Indonesia. ISCC also defaults to national laws, but application of its strict vegetation clearing policy would make it unlikely that any natural riparian vegetation could be cleared. Finally, SAN provides detailed guidance for buffer width based on slope of the adjoining land, and intensity of agrochemicals used. Requirements range from 3-20 m wide protection zones for streams ≤3 m, and 5-30 m for water bodies wider than 3 m, depending on chemical use (a look up chart is provided to assist). SAN also notes companies must follow either SAN requirements or those of national authorities, whichever is more strict.

Permanent water bodies, wetlands, and springs are mentioned explicitly in all but ISPO. RSPO requires maintaining buffers >100 m around wetlands and all permanent water bodies. The HCV Toolkit for Indonesia recommends 200 m buffers around all natural springs, again citing forestry requirements. ISCC mentions buffers around springs and along natural watercourses should be maintained, but does not provide buffer distances for either. SAN requires planted crops be separated from lakes, lagoons, marshes, swamps, and bogs by buffers of 5-30 m, and springs by buffers of 10-50 m, depending on the slope and intensity of agrochemical application. ISPO requires companies to follow legal requirements.

Indonesian laws, regulations, and rules concerning riparian, wetland, lake, and spring buffers are numerous and inconsistent, often created for different sectors. A 2011 government regulation (Peraturan Pemerintah 38/2011), which should apply to all sectors and land uses, requires 100 m buffers either side of large rivers (those draining a catchment area of >100 km²) and 50 m for small rivers (of which no minimum size is stated). This regulation defines a river as a natural or manmade object through which water flows.



Table E8. Riparian Forests

Riparian Forests	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 4.4 - Practices maintain the quality and availability of surface and ground water.</p>	<p>Sub-criterion 2.2.1 - Natural vegetation areas around springs and natural watercourses are maintained or re-established. (Minor)</p>	<p>Criterion 2.6 - Aquatic ecosystems must be protected from erosion and agrochemical drift and runoff by establishing protected zones on the banks of rivers, permanent or temporary streams, creeks, springs, lakes, wetlands, and around the edges of other natural water bodies.</p> <p>Criterion 2.9 - The farm must implement a plan to maintain or restore the connectivity of natural ecosystems, within its boundaries, considering the connectivity of habitats at the landscape level; e.g., through elements such as native vegetation on roadsides and along water courses or river banks, shade trees, live fences and live barriers.</p>	<p>Criterion 3.7 - Conservation areas with high erosion potential: Plantation managers must preserve soil and avoid erosion according to applicable regulations.</p>
Summary	<p>All permanent watercourses, wetlands and water bodies shall have buffers consisting of naturally occurring local vegetation. Watercourses between 1 to 5 m shall have at least a 10 m riparian buffer on both sides. Watercourses 5 m or wider shall have a 50 m buffer on both sides. All other permanent water bodies shall have a 100 m buffer on all sides.</p>	<p>Natural vegetation areas around springs and natural watercourses are maintained or re-established. Where natural vegetation in riparian areas has been removed there is a plan with a timetable for recultivation. No specifications on watercourse size or riparian buffer widths are provided. ISCC requires adherence with national laws, therefore it is likely that national guidelines apply.</p>	<p>Natural vegetation around all aquatic ecosystems must be maintained or rehabilitated. Buffer requirements vary depending on the width of the river, type of wetland and springs, as well as the slope of the adjoining land, and intensity of agrochemicals used. Requirements range from 3-20 m for streams that are ≤ 3 m, and 5-30 m for water bodies wider than 3 m, and 10-50 m for springs.</p>	<p>An SOP on erosion prevention in river buffers must exist, guaranteeing that (a) oil palm is not planted in these areas; (b) plants that prevent erosion are planted; and (c) if palms are already planted along the river and productive (> 4 y.o.), the area will be rehabilitated on replanting.</p>

5.9 Agrochemicals

All standards address issues related to agrochemical use, emphasizing Integrated Pest Management (IPM) to reduce the need for agrochemicals. Standard requirements vary in their breadth and detail on a shared set of agrochemical use concerns including: use of restricted chemicals, modes of application, storage, record keeping, employee training, and waste disposal. The most significant differences are in the identification and requirements for restricted agrochemicals, with SAN providing the most rigorous requirements and ISPO seemingly the most relaxed. RSPO provides a list of restricted chemicals but allows for exceptions according to national law. ISCC speaks more to storage requirements than restrictions on use for specified chemicals, relying on a combination of national regulations and the standard's principle on compliance with international treaties to define which chemicals may not be used. As a further control measure for agrochemical pollution, SAN is unique in requiring that natural vegetative buffers be maintained between the plantation/farm and natural ecosystems or areas of human activity. Management of agrochemical waste is discussed in the Waste Management section (Section 5.11).

All of the standards address multiple aspects of agrochemical use, including application methods, safety and impacts of chemicals used, integrated pest management (IPM) system, maintenance of records, guidance on chemical storage, training and safety of personnel using them, and waste disposal (Table E9).⁶ As for other topics, the requirements covering agrochemical use are addressed at different levels of detail by each standard. In general, SAN and ISCC provide the greatest level of detail, and RSPO and ISPO present more streamlined requirements. Agrochemicals are also a crosscutting theme in most standards, addressed in multiple sections and criteria - e.g., under IPM, soil, and water among others (Table E9).

One of the greatest differences between the standards pertains to restrictions on agrochemical use. RSPO prohibits use of (a) World Health Organisation Class 1A or 1B pesticides, (b) pesticides that are listed by the Stockholm or Rotterdam Conventions, and (c) paraquat. In exceptional circumstances, as guided by national Best Practice Guidelines, RSPO allows conditional use of these 'prohibited' chemicals, provided a plan is in place to minimize and eliminate their use. RSPO does not have specific restrictions on fertilizer use, requiring instead that fertilizer use be aligned with crop requirements (through e.g., foliar nutrient analysis). SAN has a longer list of prohibited agrochemicals, and unlike RSPO does not have an exception clause. SAN prohibits use of products listed in (a) the Stockholm Convention, (b) Appendix III of the Rotterdam Conventions, (c) agrochemicals banned or allowed only with severe restrictions by the US Environmental Protection Agency and European Union, and (d) the Pesticide Action Network's Dirty Dozen chemicals. In addition, a plan to eliminate use of Class I World Health Organization listed ingredients in pesticides, and reduce Class II listed ingredients, must also be in place. The standard also requires agrochemical products to be registered in the country of use and allowed for commercial use in that country. SAN re-

⁶ Training and safety is addressed more comprehensively in the Occupational Health and Safety section of this report. Waste management is addressed in Section 5.11.

quires fertilizers be used wisely and responsibly, in accordance with soil needs, and emphasizes preference of organic fertilizers.

ISCC and ISPO provide much more general instructions on use of restricted agrochemicals. With pesticides, ISCC (like SAN) requires the chemicals are registered with the host country for use on the target crop. If the country of use does not provide such a list, then the FAO International Code of Conduct on the Distribution and Use of Pesticides becomes the default reference. ISCC provides rather extensive guidance on fertilizer use and application - aiming for an input/output balance, preventing water contamination, and restricting the use of raw sewage. ISPO only requires that pesticides used must be registered with the Ministry of Agriculture's Pesticide Commission, and SOPs are in place to guide their use, storage, and disposal in accordance with technical guidance provided by government and applicable regulations. ISPO's limited mention of fertilizers are in sections encouraging use of POME wastewater as fertilizer, controlled use of chemical fertilizers as a GHG mitigation measure, and tailored application of fertilizer based on foliar analysis. Although neither ISCC nor ISPO mention the Stockholm or Rotterdam conventions, Indonesia is a signatory to both. ISCC's Principle 5 requires compliance with relevant international treaties, which means these would both apply. ISPO does not state that international treaties must be abided, but, as a signatory, it is likely the Ministry of Agriculture's Pesticide Commission list of prohibited or controlled chemicals has significant overlap with those listed on these conventions (this would be incumbent on GOI).

SAN is the only standard that provides explicit instructions for how agrochemicals must be applied, especially in sensitive areas near natural ecosystems (terrestrial and aquatic, including all watercourses) and human habitation, based on whether natural vegetative buffers are in place. A look-up table of buffer zones for controlled use is provided in the standard based on the agrochemical used, method of application, and land slope.

Finally, there are striking differences among the standards in the level of detail provided in the requirements for safe storage of agrochemicals. At one extreme, ISCC and SAN provide extensive detail on required features of storage facilities, precautionary measures, and related concerns. At the other extreme, RSPO makes a general statement requiring use of best practices, without supporting guidance on what constitutes such practice, and ISPO merely requires that a storage shed be used to store pesticides, wastes, and related materials.

Table E9. Agrochemicals

Agrochemicals	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 4.6 - Pesticides are used in ways that do not endanger health or the environment.</p> <p>Criterion 4.2 - Practices maintain soil fertility at, or where possible improve soil fertility to a level that ensures optimal and sustained yield.</p>	<p>Principle 2 - Biomass shall be produced in an environmentally responsible way. This includes the protection of soil, water and air and the application of Good Agricultural Practices</p> <p>Criterion 2.6 -Use of fertilizer</p> <p>Criterion 2.7 - Integrated pest management (IPM)</p> <p>Criterion 2.8 - Use of plant protection products (PPP)</p> <p>Criterion 2.9 - Plant protection product storage</p>	<p>Principle 8 - Integrated crop management</p> <p>Principle 6 - Occupational health and safety</p> <p>Principle 2 - Ecosystem conservation</p>	<p>Criterion 2.1.7 - Plant pest control: Plantation managers must implement an Integrated Pest Management (IPM) system in accordance with the Technical Guidance.</p>

5.10 Water Conservation

Water conservation themes are touched upon throughout the standards, covering issues including water management, protection of water resources, waste management to prevent pollution of water sources, efficient water use, monitoring, water rights, and considerations of water as a shared resource. ISPO covers all of the topics, but is the least specific, requiring an SOP for land clearing that follows water conservation principles, seemingly relying on the EIA and associated management and monitoring documents to spell out more prescriptive requirements. ISPO provides greater detail on wastewater (mill effluent) management and monitoring, which is the focus of the next section (Section 5.11). RSPO, ISCC, and SAN have explicit requirements for water management plans, though these are not mandatory for ISCC and SAN. Protection of natural buffers on watercourses and wetlands, responsible management of water waste, efficient water use, monitoring, and consideration of other water users (especially nearby communities) are addressed similarly by all four standards.

All four standards cover multiple aspects of water management. Requirements for water management plans are explicit under RSPO, ISCC, and SAN (referred to as a water conservation program), but ISCC and SAN provisions for this are non-mandatory. ISPO has an indicator in its Water Quality and Source Conservation sub-criterion (2.1.2), requiring records of water management and maintenance of water sources, but does not explicitly require a management plan or SOP for this. ISPO does however require various SOPs related to monitoring of mill effluent and impact of potential pollutants on water sources.

Protection of wetlands, watercourses, and riparian buffers is sufficiently addressed by all of the standards (discussed earlier in Section 5.8). Palm oil mill effluent and wastewater is also sufficiently addressed by all of the standards and is discussed below under Waste Management (Section 5.11). Criteria linked to these areas are mandatory under RSPO and ISPO (as with all of their criteria), and largely mandatory under ISCC, but under SAN only criteria linked to water quality monitoring and wastewater discharge are mandatory.

Efficient water usage is mentioned in all of the standards. RSPO requires this be considered in the water management plan. ISCC requires a water management plan that aims for sustainable water use and pollution prevention, with annual monitoring including efficiency of water usage. SAN's water conservation program requires use of the best technology available, recirculation and reuse of water, minimization of water use, monitoring provisions to determine whether use is excessive or wasteful, and leak avoidance. ISPO's requirement is short and to the point but lacks any prescriptive detail, "Companies must use water efficiently."

Monitoring is also addressed by all standards. Monitoring requirements are not detailed by RSPO in the water criterion (4.4) beyond an indicator stating that mill water use per ton CPO output should be monitored. However, monitoring is the basis of Criterion 8.1, which states that growers and millers must monitor and review all of their activities and develop and implement action plans to ensure continuous improvement – presumably this would cover water use monitoring as well. ISCC states that annual monitoring of good agricultural practices should include monitoring efficiency of water use, responsible use of agrochemicals, and

wastewater discharge. SAN requires annual recording of water volume used from surface and ground water sources, and total volume consumed by the farm. ISPO has provisions requiring records of water management and maintenance, a surface water quality monitoring program to ensure clean water for communities, water use records for mills, and monitoring of wastewater, soil, and groundwater for plantations using land application. No prescriptive guidance or targets for efficiency is provided.

Water rights and shared use are also addressed by all of the standards. RSPO requires companies to avoid adverse impacts on other users in the catchment, and assurance that local communities, workers, and their families have access to clean water for daily living needs. ISCC has mandatory provisions for respecting existing water rights (formal and customary), justifying use of irrigation and adherence to local regulations. SAN requires operations to have concessions and/or permits for all surface and ground water used. ISPO has guidance stating that the company must ensure that wastewater is not contaminated and that water use does not negatively impact other water users.



Table E10. Water Conservation

Water Conservation	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 4.4 - Practices maintain the quality and availability of surface and ground water.</p>	<p>Principle 2 - Biomass shall be produced in an environmentally responsible way. This includes the protection of soil, water and air and the application of Good Agricultural Practices.</p> <p>Criterion 2.5 -Ground water and irrigation</p>	<p>Principle 4 - Water conservation</p>	<p>Sub-criterion 2.1.1 - Land clearing: Land clearing meets the principles of land and water conservation.</p> <p>Sub-criterion 2.1.2 - Water quality and source conservation</p> <p>Sub-criterion 2.2.4 - Waste management. Factory managers ensure that palm oil mill waste is managed in accordance with applicable regulations.</p> <p>Criterion 3.1 - For plantations with a mill, plantation managers must implement management and monitoring in accordance with applicable provisions.</p> <p>Criterion 3.7 - Conservation areas with high erosion potential</p>

5.11 Waste Management

All four standards have waste management provisions requiring a waste management plan or SOP focusing on reduction, reuse, and recycling. Overall, SAN provides the most detailed provisions, addressing all of the aspect of waste management. ISCC and SAN have detailed provisions on treatment, reuse, and disposal of containers previously used for storing agrochemicals and other hazardous and toxic chemicals. Mill effluent and wastewater are best addressed by SAN, sufficiently addressed by RSPO and ISPO, and only touched on by ISCC. ISCC and SAN have the clear solid waste provisions that are lacking in RSPO and ISPO. RSPO provides shorter but all encompassing provisions. ISCC and SAN's waste management provisions are much more heavily focused on agrochemical waste management than RSPO and ISPO. ISPO is heavily focused on palm oil mill effluent, hazardous and toxic waste, and air pollution.

All four standards have overarching waste management policies that aim to reduce and recycle waste products and dispose of waste in an environmentally responsible manner (Table E11).

Mill effluent and wastewater are covered in detail by SAN, sufficiently in RSPO and ISPO, and only touched on in a water quality management instruction under ISCC. SAN requires appropriate treatment of wastewater, including legal compliance and no discharge into natural water bodies unless legal requirements for wastewater are met. In cases where no regulations exist, SAN provides tables with wastewater parameters that must be met and what must be sampled during monitoring. SAN places restrictions on the use of septic tanks and instructs that wastewater from washing agrochemical machinery must not mix with other wastewater. When compliance is in question, surface water testing must be conducted to ensure compliance. RSPO requires companies avoid contamination of surface and ground water from run-off and inadequate disposal of palm oil mill effluent (POME). POME is to be recycled as part of a nutrient recycling program and as part of a company's pollution reduction plan. POME related activities must be assessed and monitored. ISPO requires POME and mill wastewater be managed, monitored, and reported according to regulations, with an SOP detailing such. If land application is used, monitoring of ground water, wastewater, and soil is required at different intervals. If land application is not being used, only wastewater must be monitored. ISCC has a non-mandatory sub-criterion stating that a water management plan should be in place with the goal of sustainable water use and avoiding pollution. The instruction states that annual documentation showing that good agricultural practices have been applied with regard to waste discharge should be available.

All standards, except ISCC, have provisions specifically addressing hazardous and toxic wastes. Although ISCC does not have the broader hazardous and toxic waste category, it does cover agrochemical waste, a large subset of hazardous and toxic wastes, which are addressed in the next paragraph. RSPO requires a waste management and disposal plan that outlines appropriate management and disposal of hazardous chemicals and their containers. Containers must be reused, recycled, or disposed of in a socially and environmentally responsible manner, in compliance with the law and following the manufacturer's instructions.

SAN has similar requirements, ensuring that waste is not transferred to other parties without first being treated or used in compliance with the law and SAN's standard, and verification that their transfer will not cause negative impacts on human health or the environment. ISPO requires an SOP specifically for handling hazardous and toxic wastes, requiring companies to dispose toxic wastes in accordance with applicable laws and regulations, keep records of quantities of in-going and out-going wastes, and report these records to authorities per legal requirements.

Agrochemical waste is addressed most extensively by ISCC and adequately by the other standards as well in their broader provisions on toxic and hazardous waste. ISCC has mandatory criteria requiring surplus application mixes and tank washing waste be disposed of in a manner that does not contaminate ground water and that containers are cleaned properly and disposed of following local regulations. Other non-mandatory criteria include annual documentation of applied good agricultural practices with regard to agrochemical use, obsolete agrochemical products are disposed of by authorized or approved channels, re-use of empty agrochemical containers is avoided, and disposal is in a manner that does not harm humans or the environment. SAN has a non-critical agrochemical provision requiring (a) designated areas to avoid escape of chemicals and their associate plastic wastes and (b) use of a special water collection system to collect spills and airplane wash water when planes are used for fumigation. SAN also has a criterion to avoid excessive application of agrochemicals. RSPO has an indicator requiring companies to show a reduction in the use of pesticides, and a criterion stating that disposal of pesticide waste material must be in accordance with identified procedures and fully understood by workers and managers. A separate indicator states that chemicals and their containers must be disposed of responsibly.

ISCC and SAN have the clearest solid waste provisions. ISCC has a non-mandatory provision stating that the farm must have a comprehensive, current, and documented waste management plan that is based on reducing and recycling. Landfills and burning must be avoided and the premises must have adequate provisions for waste disposal with designated areas for different types of waste to be stored separately. Raw sewage sludge is prohibited for fertilizer use. SAN only has one mandatory solid waste provision: that no organic or inorganic wastes are deposited into natural water bodies. Other non-critical criteria prohibit the use of open waste dumps and only allow fire to be used in a legally permitted incinerator designed for that particular purpose, taking environmental and human health into consideration. The farm should be kept tidy and free of waste, where workers use waste receptacles and not throw trash around indiscriminately. In wastewater treatment systems, packing plants must have a waste trap to discharge solid wastes to prevent them from entering canals and water bodies.

ISPO does not directly address solid wastes and RSPO only states that companies should avoid using fire to dispose of waste.

Table E11. Waste Management

Waste Management	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 5.3 - Waste is reduced, recycled, re-used and disposed of in an environmentally and socially responsible manner.</p> <p>Criterion 4.4 - Practices maintain the quality and availability of surface and ground water.</p> <p>Criterion 4.6 - Pesticides are used in ways that do not endanger health or the environment.</p> <p>Criterion 5.6 - Plans to reduce pollution and emissions, including greenhouse gases, are developed, implemented and monitored.</p> <p>Criterion 8.1 - Growers and millers regularly monitor and review their activities, and develop and implement action plans that allow demonstrable continual improvement in key operations.</p>	<p>Criterion 2.10 - Empty plant protection product containers and waste disposal</p> <p>Sub-criterion 2.10.6 - There is a farm waste management plan. Waste recycling avoids or reduces wastage and avoids the use of landfill or burning. (Minor)</p> <p>Sub-criterion 2.5.3 - Application of good agricultural practices to reduce water usage and to maintain and improve water quality (Minor)</p> <p>Sub-criterion 2.8.8 - Surplus application mixes or tank washings is disposed of in a way not to contaminate the ground water. (Major)</p> <p>Sub-criterion 2.9.7 - Obsolete plant protection products are securely maintained and identified and disposed off by authorised or approved channel. (Minor)</p>	<p>Principle 10 - Integrated waste management</p> <p>Principle 4 - Water conservation</p>	<p>Sub-criterion 2.1.7 - Control of plant pest organisms (<i>Organisme Pengganggu Tanaman, OPT</i>): Plantation managers must implement a system of Integrated Pest Management in accordance with technical guidance.</p> <p>Criterion 2.2 - Application of technical guidelines for processing plant products</p> <p>Sub-criterion 2.2.4 - Waste management: Factory managers ensure that palm oil mill waste is managed in accordance with applicable regulations.</p> <p>Sub-criterion 2.2.5 - Hazardous and toxic waste (B3) Management: B3 waste is hazardous or toxic waste and that because of the nature or amount and concentration can pollute or damage the environment, and therefore optimal efforts must be made to return the quality of the environment back to its original function.</p> <p>Sub-criterion 2.2.7 - Waste utilization: Plantation/factory management must use the waste to increase efficiency and reduce environmental impact.</p> <p>Criterion 3.1 - For plantations with a mill, plantation managers must implement management and monitoring in accordance with applicable provisions.</p>

6 SOCIAL THEMES & PROCEDURES

This comparison of Social Themes and Procedures in the standards is arranged in the same format as the Environmental section, with a table accompanying each of the themes/procedures. The section is separated into four sections and related subsections shown below:

- Social Impact Assessment
- Community Benefits
- Community Consent and Land Acquisition
 - A. Community consultation
 - B. FPIC
 - C. Land rights and acquisition
 - D. Compensation
 - E. Conflict resolution
- Employment
 - A. Contracts
 - B. Wages
 - C. Other conditions and benefits
 - D. Freedom of association and bargaining
 - E. Occupational health and safety (OH&S)
 - F. Living conditions
 - G. Human rights
 - H. Forced labor
 - I. Child labor
 - J. Child access to education
 - K. Discrimination
 - L. Women
 - M. Indigenous people

6.1 Social Impact Assessment

All four standards require an SIA but vary widely in their requirements (Table S1). RSPO has the most comprehensive requirements, strongly emphasizing a participatory process. ISCC guidance is comparatively brief, but it also requires a participatory SIA that is used as the basis for ongoing discussion and resolution of social issues. SAN requires an evaluation of social impacts for new developments in accordance with applicable laws, which in Indonesia would require following the AMDAL process and inadequately defined procedures for FPIC. Compliance with SIA provisions of SAN requires evaluation against a lengthy description of the mandatory Social and Environmental Management System that enables detection and proactive steps to resolve social issues. Although guidance for the SEMS required by SAN is strong, reliance on the AMDAL for social impact evaluation without providing further guidance effectively weakens SAN's standard in practice in Indonesia due to a culture of poor quality social assessments in the AMDAL. ISPO also relies on the AMDAL process and does not provide extensive requirements for a management system as described by SAN. Viewed in context, ISPO appears to offer weak safeguards for social impacts compared to other standards.

RSPO provides detailed requirements for a Social Impact Assessment (SIA), placing heavy focus on a participatory process to identify and mitigate negative impacts and promote positive ones. An SIA must be completed prior to new plantings or other operations as well as upon replanting, and must be updated at least once every two years. An independent team of experts should make the SIA, different from those who conduct the EIA. It should also be noted that HCV 4-6 directly address social issues, so that implementation of HCV assessment will also lead to social assessment via HCV protocol. The RSPO standard uses the SIA as its focal social assessment safeguard, treating HCV assessment as supplementary.

ISCC outlines very few requirements on SIAs, apart from clear requirements for participatory methods, with results made available to and shared with surrounding communities. ISCC views the SIA document as the basis for ongoing communication and meetings with communities and local government to ensure impacts and risks are adequately addressed and conflicts resolved. The standard does not provide specifics beyond this.

SAN requires a Social and Environmental Management System (SEMS) be implemented on all SAN certified farms. The SEMS is applied through evaluation of social and environmental impacts arising from expansion or major changes to operations. Such assessment must be undertaken prior to any new works and use methods in accordance with applicable laws (the AMDAL in this case) or, in the absence of laws, based on accepted, up-to-date methodologies. This evaluation process embedded within the SEMS is SAN's version of an SIA. The SEMS requirements for implementation, monitoring, evaluating, and adjusting as necessary reflects an adaptive management approach to social impacts. In theory, these requirements help to prevent treatment of the AMDAL merely as an administrative exercise. But in practice, the rigor of the evaluation may be drawn into question without clear requirements on participatory means of evaluation, accreditation of those undertaking the evaluation, and what should be included in it.

ISPO relies on the AMDAL process to identify and address potential social impacts. By doing so, it faces the same risks as SAN, with questionable rigor of the evaluation since social impacts are not a major focus of most AMDALs. It does not provide explicit guidance on any aspects of the SIA, beyond reinforcing the legal requirement for (a) undertaking AMDAL in operations >3,000 ha and an environmental management and monitoring plan (UKL/UPL) for areas smaller, and (b) submitting annual monitoring reports to government in accordance with the law. ISPO also requires avoidance of HCV areas, which in theory could help safeguard areas important for community livelihoods and cultural heritage, but provides no specific guidance on how HCV is to be implemented. Viewed in context, ISPO would seem to offer less stringent SIA safeguards compared to other standards.



Table S1. Summary of how SIA concerns are addressed in the different standards

Social Impact Assessment	RSPO	ISCC	SAN	ISPO
Score	1	1	1	2
Main Provisions	<p>Criterion 6.1 - Aspects of plantation and mill management that have social impacts, including replanting, are identified in a participatory way, and plans to mitigate the negative impacts and promote the positive ones are made, implemented, and monitored, to demonstrate continual improvement.</p> <p>Criterion 7.1 - A comprehensive and participatory independent social and environmental impact assessment is undertaken prior to establishing new plantings or operations, or expanding existing ones, and the results incorporated into planning, management and operations.</p> <p>Note: RSPO does not rely on HCV for social aspects of its standard, but they are covered under the HCV process required by RSPO in Criteria 5.2 and 7.3.</p>	<p>Criterion 4.8 - All impacts for surrounding areas, communities, users, and landowners are taken into account and sufficiently compensated for. (Minor Must)</p>	<p>Principle 1 - Social and environmental management system</p>	<p>Criterion 3.2 - Responsibilities related to environmental impact assessment AMDAL, UKL and UPL: Plantation management must fulfill their obligations regarding AMDAL, UKL and UPL in accordance with applicable legislation.</p> <p>(Note: An AMDAL covers social impacts.)</p> <p>Criterion 3.5 - Identification and protection of HCV areas: Plantation managers must identify HCV areas that consist of areas that have a primary function of protecting environmental sustainability that includes natural resources, man-made resources, and national historical or cultural value and not convert these areas to oil palm.</p> <p>(Note: Depending on the HCV approach used, this should also cover social issues that overlap with an SIA.)</p>

6.2 Community Benefits

RSPO and ISPO have numerous requirements and guidance related to social and economic development of local communities. ISPO stands out in requiring that 20% of a plantation be developed for local communities, a legal requirement in Indonesia, that will also apply to the other standards when fulfilling criteria to comply with national regulations. ISPO has provisions specific to indigenous people and supporting the development of local businesses. RSPO has an important criterion that requires development efforts be based on community consultation, allowing for communities to identify their priorities. ISCC and SAN briefly mention community development, and instead focus extensively on social sections including human rights, fair employment conditions, and occupational health and safety.

All four of the standards have provisions for providing social and economic benefits to local communities, with ISPO and RSPO providing the most extensive instruction (Table S2). ISPO requires 20% of a plantation area be developed for the community⁷, which follows national law, and that the company empowers indigenous people, supports local businesses, and contributes to community development (with guidance identifying education, health, infrastructure, small businesses, sports, art, religion, etc. as means of doing so). RSPO also has relatively extensive development requirements, but does not have the 20% provision as with ISPO. It does however have some additional important requirements not included in ISPO—such as a focus on community led/designed development. RSPO leaves any decision on community benefits to be decided by the National Interpretations, for instance, “specific parameters or thresholds such as use of local and national goods and services where possible, whether a certain percentage of the plantation’s profit/turnover should be used for social development projects, and minimum quotas for local employment.” RSPO also focuses on helping local palm oil farmers improve their farming practices, dealing fairly and transparently with small business owners (e.g., FFB pricing), and giving priority to local community members when hiring.

ISCC and SAN have extensive social sections focusing on worker health and rights, more than community development. SAN has one short but dense, non-critical criterion that states that the plantation must engage in community development and contribute fairly towards shared infrastructure and resources (e.g., schools, pathway, water, roads, etc.). It does not provide any further provisions on social or economic development of local communities. ISCC has one “minor must” criterion (i.e., not mandatory) that requires social benefits be offered to employees, their families, and/or the community. Community development examples include improvement of social surroundings, support of professional development, and medical/health care provisions. Some criterion in Principle 4 of ISCC lean towards economic benefits for communities because of fair employment stipulations, but are not clearly linked to community economic development.

⁷ This applies for companies that have an IUP (*ijin usaha perkebunan*) or IUP-B (*ijin usaha perkebunan-budidaya*) which are plantation permits that area a necessary step in the oil palm plantation permitting process if the area targeted for development exceeds 25 ha.

Table S2. Summary of how concerns over local economic benefits are addressed in the different standards

Benefits for communities		RSPO	ISCC	SAN	ISPO
Score		1	2	2	1
Main Provision		<p>Principle 6 - Responsible consideration of employees and of individuals and communities affected by growers and millers</p> <p>Criterion 6.10 - Growers and millers deal fairly and transparently with smallholders and other local businesses.</p> <p>Criterion 6.11 - Growers and millers contribute to local sustainable development where appropriate.</p>	<p>Principle 4 - Biomass production shall not violate human rights, labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations.</p> <p>Criterion 4.19 - Other forms of social benefits are offered by the employer to employees, their families and/or community. Incentives (please specify in quantities if possible) for good working performance, bonus payment, support of professional development, family friendliness, medical care/health provisions, improvement of social surroundings are offered. (Minor)</p>	<p>Principle 7 - Community relations</p> <p>Criterion 7.4 - The farm must contribute to the protection and conservation of community natural resources, collaborate with the development of the local economy, and contribute fairly towards the costs of the community infrastructure and local shared resources consumed—schools, pathways, aqueducts, and other infrastructure as well as water and other resources—according to the amount used by the farm. Farms must negotiate a fair compensation with local communities and local and national authorities for resources and infrastructure used.</p>	<p>Criterion 1.2 - Development of neighboring community plantations: Companies that have IUP or IUP-B must develop plantations for the community, equaling a minimum of 20% of the total plantation area.</p> <p>Principle 5 - Community and social responsibility</p> <p>Criterion 5.1 - Community environment and social responsibility: Plantation managers must have a social and community commitment and commitment to developing the potential of local knowledge.</p> <p>Criterion 5.2 - Empowering indigenous people: Plantation management has a role in the welfare of indigenous people.</p> <p>Principle 6 - Strengthening community economic activities</p>

Benefits for communities	RSPO	ISCC	SAN	ISPO
Main Provision				Criterion 6.1 - Local business development: Plantation managers prioritize communities surrounding the plantations for the procurement of goods and services.

6.3 Community Consent and Land Acquisition

Four distinct sub-themes are compared under this heading, including Community Consultation, FPIC, Land Rights and Acquisition, and Compensation.

Crosscutting Summary

RSPO's community consultation and consent requirements seem to be heavily guided by experience acquired over the last five years of implementation—clearly defining its position on critical elements in a more comprehensive and nuanced manner than ISCC, SAN, or ISPO, especially on matters relating to fair negotiations (S3).

RSPO requirements for community consultation emphasize transparency, strong measures for proof of consultation, and guidance on important areas required for effective consultation. ISCC relies largely on the SIA process but also requires documented, regular two-way communication with communities. SAN uses rhetoric that clearly communicates the standard's intent—to respect local community interests and values—but is not particularly clear on steps that must be taken to achieve this. ISPO provides clear guidance that a community consultation meeting must be held prior to development and with government approval to provide information to and consult with landowners and any affected communities. This requirement appears to be a one-off consultation, however, with requirements for subsequent communications limited to companies having a system for documenting information requests from communities and lists of information provided in response—there are no explicit requirements for ongoing, proactive communications lead by the company.

The term free and prior informed consent (FPIC) is used only in RSPO. The other standards have provisions for community or owner consent and land acquisition in line with legal requirements, but none place clear emphasis on transparency, and the right to (1) have a clear, comprehensive understanding of the implication of the proposed development, (2) the ability to make decisions according to customary decision-making systems, and (3) the right to say “no” — all inherent in the FPIC process.

All four of the standards require the company to demonstrate a legal right to use land. RSPO has an additional provision whereby companies must prove absence of conflict over land rights/use, create a map of the area displaying legal, use rights through participatory mapping, and provide evidence that individuals with rights have had access to information and advice, independent of the proponent, on the implications of the proposed development. In principle, this provision of the RSPO could be a highly effective safeguard to ensure fair procedures for land acquisition.

Compensation requirements for transfer of use rights vary greatly, with RSPO again providing the most detailed instructions, including requirements for a well-defined, yet adaptive process that ensures those with legal, customary, or use rights are fairly compensated. ISCC requires all impacts on surrounding areas, communities, users, and landowners are taken into account and people are fairly and sufficiently compensated. The only further ISCC instruction is to maintain regular, two-way communication with community members with evidence of negotiations and resolution of disagreements. SAN does not state requirements

on compensation for land acquisition; rather it only speaks to compensation for resources and infrastructure used in an area. The company must negotiate fair compensation with local communities and local and national authorities for use of these resources. ISPO requires companies have agreements in place with indigenous people concerning land use, compensation amount, and the rights and obligations of each party, and that communities are involved in developing a consensus agreement on these matters. Specific guidance on required elements of a process leading to such agreements is not provided.

All four standards require a process be in place to resolve disputes and complaints. Here again, RSPO guidance is the most extensive.

A. Community Consultation

Community consultation is central to RSPO's requirements. As part of the SIA process, the standard states that a participatory process must be used to identify impacts of all aspects of plantation/mill development, operations, and plans to mitigate negative impacts and promote positive ones developed (as part of SIA). A separate criterion requires open and transparent methods for communication and consultation between growers/millers, local communities, and other affected/interested parties. The criterion requires companies to document the stakeholders, record communications including confirmations of receipt, and record actions taken to resolve issues. A management official specific to this task is also required. Further guidance instructs companies to consider the involvement of third parties (such as NGOs) to facilitate the mechanism of communication, taking gender, social status, and local languages into account.

ISCC's criteria for community consultation rely on a participatory SIA process, whereby the SIA is made publicly available in the appropriate language. Additionally, the company must document regular meetings with communities and local government to show two-way communication and document evidence that the company presented risks and impacts.

SAN has a critical criterion requiring policies and procedures to identify and consider interest of the local population and community interest groups regarding company activities that may impact their health, employment, or natural resources. All complaints, comments, and the company's replies must be documented and made available to the public. A separate criterion requires the company to respect areas and activities that are important to the community (socially, culturally, biologically, environmentally, religiously) and hence not affect them, implementing community consultation to identify areas with such value.

ISPO has a criterion requiring provision of information to government agencies and other stakeholders, with the exception of confidential information. Companies must have a delivery mechanism, records of information that can and have been provided, and records of responses to requests for information. Guidance for this criterion greater reflects consultation, stating that before a company begins operations a community consultation meeting should be held to consult landowners. This meeting is intended to disseminate information regarding plantation development plans, scope and impact, acquisition plans, and land acquired; provide information about development plans and how conflicts will be resolved; gather

social and environmental data; and gain community participation regarding types and amount of compensation for land that is used by the company.

B. FPIC

The term FPIC, or Free and Prior Informed Consent, is only used in RSPO's standard, where it is central to RSPO's social policy. RSPO requires that no new plantings occur on lands where local people have legal, customary, or use rights without FPIC. A documented system must be in place, allowing people to express their view, and they must clearly understand that they have the right to say "no" during all stages of negotiation, up until the point where an agreement with the grower/miller has been signed and ratified. Further guidance refers to a separate RSPO document specifically on FPIC. The standard emphasizes that sacred sites should be maintained, no coercion or undue influence should be placed on stakeholders, and customary and user rights should be mapped in a participatory manner. For land disputes, additional documentation of land title and fair compensation, undertaken based on FPIC, must be available with detailed documentation of such processes. Finally, the use of land for oil palm should not diminish legal, customary, or use rights without FPIC. This is important in Indonesia where use rights are relinquished to the government when the company lease expires—the owner loses future rights to the land after compensation is paid (by the company) to the individual with use rights.

Other standards touch on community consent, mainly by statements that consent and land rights must be acquired, but none with the level of consideration about the process of doing so as required under FPIC.

C. Land Rights and Acquisition

RSPO requires that the right to use land is demonstrated and not legitimately contested. Indicators of this include documentation of legally binding agreements and the FPIC process leading to such, as well as participatory mapping of legal, customary, and use rights. Companies must prove that affected communities and rights holders have had access to information and advice, independent of the proponent, about the legal, economic, social, and environmental implications of the proposed development prior to issuance of a land title. ISCC requires that the company does not violate land rights, can prove that the land is used legitimately, and that traditional land rights have been secured. It does not delve into the processes involved. SAN requires legitimate right to land tenure supported by official documentation. In the absence of documentation, an absence of disputes over land use, tenure and access must be proven, along with consent from local communities. ISPO simply requires that the company obtains the appropriate permits and land titles, and provides guidance not to restrict access and respect the public interest with regard to lands that have not been acquired.

D. Compensation

RSPO requires that local people are compensated for any land acquisition or relinquishment of rights as negotiated and agreed using FPIC procedures, where demonstrated that local

people have legal, customary, or use rights. Negotiations are to be dealt with through a documented system, enabling all to express their views through their representative institution. Indicators include a procedure for identifying entitled individuals and calculating and distributing fair compensations, a participatory process for determining compensation, and an adaptive process for monitoring, evaluating, and revising this process as necessary. Claims, processes, and outcomes are to be made publicly available. Guidance provided requires considerations for gender differences, transmigrants versus long-term community members, and differences in proof of legal ownership versus communal ownership. Finally, the standard requires that individuals that have lost access and rights to land be given opportunities to benefit from plantation development.

ISCC also requires compensation but makes a potentially unrealistic requirement that all impacts on surrounding areas, communities, users, and landowners are taken into account and people are fairly and sufficiently compensated. Associated instructions refer a participatory SIA, ongoing, two-way communication with local communities, and evidence of negotiations and the resolution process.

SAN only refers to compensation in regard to company use of natural resources, services (e.g., schools), and infrastructure that are shared with the community at large, as opposed to individuals with land or use rights. The company must negotiate fair compensation with local communities and local and national authorities for use of these resources. SAN also requires companies to help develop the local economy and contribute to the protection and conservation of community natural resources.

ISPO requires companies have an agreement with communities and/or indigenous people about land use, compensation amount, and the rights and obligations of each party. These decisions should be the result of a consensus decision. The community should be consulted about possible alternative methods of compensation during a public consultation meeting held prior to the company operating in the area.

E. Conflict Resolution

RSPO requires a mutually agreed upon and documented system for addressing complaints and grievances that is to be implemented by all parties. Indicators of such a system include an effective, timely, appropriate system where complaints/grievances can be kept anonymous if requested. The process and outcome of a dispute must be documented. Guidance is given for how unresolved conflicts are to be brought to the attention of the RSPO. Palm oil operations are prohibited from instigating violence, with guidance noting that intimidation, harassment, paramilitaries, and mercenaries may not be used. With regard to land disputes, a participatory map of disputed areas is to be made.

ISCC requires conflicts be resolved through regular meetings with communities, and that companies compile evidence of such negotiations and the resolution process. Additionally, a complaint form and/or procedure should be made available on the plantation for employees and affected communities, and mediation available in case of social conflict.

For SAN, conflict resolution is again embedded in its Social and Environmental Management System, which will include a process to measure and analyze claims made by workers, other

persons, or groups. The System will be continually evaluated and improved. Additionally, there is a critical criterion that requires all complaints and comments received be documented and made public, along with a company’s activities and replies in response to these complaints and comments.

ISPO requires that plantation managers ensure that the land is free of disputes with communities and surrounding farmers. When disputes arise, an agreement must be reached in accordance with applicable state laws or customary regulations. If an agreement cannot be reached, then legal action should be taken to settle the matter. Indicators include the presence of a land dispute resolution mechanism, a map of disputed lands, a copy of agreements made, and records of progress in dispute resolution.



Table S3. Summary of how concerns over Community Consent and Land Acquisition are addressed in each standard*

Community consent and land acquisition	RSPO	ISCC	SAN	ISPO
A. Community consultation Score	1	2	2	2
B. FPIC Score	1	3	3	3
C. Land rights and acquisition Score	1	2	2	2
D. Compensation Score	1	1	2	1
E. Conflict resolution Score	1	1	1	1
Main Provisions	<p>Criterion 2.2 - The right to use the land is demonstrated, and is not legitimately contested by local people who can demonstrate that they have legal, customary or user rights.</p> <p>Criterion 2.3 - Use of the land for oil palm does not diminish the legal, customary or user rights of other users without their free, prior and informed consent.</p> <p>Criterion 6.1 - Aspects of plantation and mill management that have social impacts, including replanting, are identified in a participatory way, and plans to mitigate the negative impacts and promote the positive ones are made, implemented and monitored, to demonstrate continual improvement.</p>	<p>Principle 4 - Biomass production shall not violate human rights, labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations.</p> <p>Criterion 5.1 - The producer can prove that the land is used legitimately and that traditional land rights have been secured. (Major)</p> <p>Criterion 4.8 - All impacts for surrounding areas, communities, users and landowners taken into account and sufficiently compensated for. (Minor)</p>	<p>Criterion 1.7 - The farm must have the necessary processes for follow up, measurement and analysis, including that of claims by workers or other persons or groups, to evaluate the functioning of the social and environmental management system and farm compliance with applicable laws and the standard. The results of these processes must be recorded and incorporated into the social and environmental management system through a continual improvement plan and program. The continual improvement program must include the necessary corrective actions to rectify non-compliance situations, as well as the mechanisms needed to determine if the actions are implemented and if they result in improvements or need to be adjusted to produce the desired results.</p>	<p>Criterion 1.1 - Licensing and certification: Plantation managers must obtain permits and land titles.</p> <p>Criterion 1.5 - Land disputes and compensation</p> <p>Criterion 1.9 - Provision of information to relevant agencies according to applicable regulations and other stakeholders, with the exception of information concerning things that should be kept confidential.</p>

Community consent and land acquisition	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Criterion 6.2 - There are open and transparent methods for communication and consultation between growers and/or millers, local communities and other affected or interested parties.</p> <p>Criterion 6.3 - There is a mutually agreed and documented system for dealing with complaints and grievances, which is implemented and accepted by all affected parties.</p> <p>Criterion 6.4 - Any negotiations concerning compensation for loss of legal, customary or user rights are dealt with through a documented system that enables indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions.</p> <p>Criterion 7.5 - No new plantings are established on local peoples' land where it can be demonstrated that there are legal, customary or user rights, without their free, prior and informed consent. This is dealt with through a documented system that enables these and other stakeholders to express their views through their own representative institutions.</p>	<p>Criterion 4.11 - There is a complaint form and/or procedure available on the farm, where employees and affected communities can make a complaint. (Minor)</p> <p>Criterion 4.20 - Mediation is available in case of a social conflict. (Minor)</p>	<p>Criterion 7.1 - The farm must respect areas and activities that are important to the community socially, culturally, biologically, environmentally and religiously. These must not be affected by farm activities.</p> <p>Criterion 7.2 - <i>Critical Criterion</i>. The farm management must implement policies and procedures for identifying and considering the interests of local populations and community interest groups regarding farm activities or changes that could have an impact on their health, employment or local natural resources. The farm must document and make available for public view all complaints and comments it receives related to its activities and its replies to them.</p> <p>Criterion 7.4 - The farm must contribute to the protection and conservation of community natural resources, collaborate with the development of the local economy, and contribute fairly towards the costs of the community infrastructure and local shared resources consumed—schools, pathways, aqueducts and other infrastructure as well as water and other resources—according to the amount used by the farm. Farms must negotiate a fair compensation with local communities and local and national authorities for resources and infrastructure used.</p>	

Community consent and land acquisition	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Criterion 7.6 - Where it can be demonstrated that local peoples have legal, customary or user rights, they are compensated for any agreed land acquisitions and relinquishment of rights, subject to their free, prior and informed consent and negotiated agreements.</p>		<p>Criterion 7.6 - The farm must have a legitimate right to land use and tenure, demonstrated by presenting the appropriate official documentation. If there is no such documentation the farm must show either:</p> <ul style="list-style-type: none"> a. The absence of significant disputes on land use, tenure and access; or b. The consent of local communities, regarding the land, natural and agricultural resources. 	

6.4 Employment

The Employments section is led by a Crosscutting Summary text box, and then broken down into 13 sub-sections by topic to facilitate comparison of the multiple facets of employment covered by the standards.

Crosscutting Summary

RSPO was consistently the strongest standard with regard to employment conditions, providing clear and relatively ambitious mandatory targets for companies seeking certification. ISCC and SAN were the next strongest, both notable for the level of detail provided in their guidance on matters relating to employment conditions. Their weakness is that not all of the criteria are mandatory, making it difficult to compare them against RSPO and ISPO where all criteria are mandatory. They also failed to give specific guidance on women and indigenous people, but these groups could be considered covered in the non-discrimination criteria. Generally speaking, ISCC and SAN are strong in their requirements, with frequent references to ILO conventions. ISPO omits or only superficially touches on most employment condition topics that are described more in depth in other standards. This is possibly due to the standard's mirroring of Indonesian law and expectations that further details will be obtained from the legal system, yet references to obligations to follow applicable legislation is not specifically mentioned in many of the sections.

A. Contracts

RSPO, ISCC, and SAN all have strong provisions for employee or worker contracts that must be fair and clearly understood by the employee/worker, although ISCC and SAN's are not mandatory (a 'minor must' and non-critical criterion, respectively). ISPO does not have a requirement for employee/worker contracts (Table S4).

RSPO clearly states that there must be documentation of pay and conditions and that labor laws, union agreements, and direct employment contracts must detail payments and conditions of employment (e.g., working hours, deductions, overtime, sickness, holiday entitlement, maternity leave, reasons for dismissal, period of notice, etc.). Such contracts must be available in a language understood by the contractor and explained carefully to by a management official. The Standard also states that contracts for smallholders and local businesses must be fair, legal, and transparent.

ISCC's standard is similar to RSPO's requiring records that indicate the full names, job descriptions, birthdate, date of entry, wage, and period of employment for all employees, including seasonal and subcontracted workers. Each of these employees is obliged to have fair, legal contracts that have been signed by both the employee and the employer.

The SAN standard is also strong with regard to work contracts, requiring a labor contract and policies and procedures that guarantee complete payment on dates agreed upon in the contract. It specifies that method of payment must be clear and agreed upon by the worker and employer, the explanation of pay and deductions is comprehensive and detailed, and the worker must be able to appeal any perceived discrepancies. When employing more than ten

people, there must be an up-to-date pay roll and job description for each employee that the employee has access to. The pay roll should include the worker's name, national ID card number, position, job description, and salary, whereby the salary must meet the government minimum for that activity and weekly working hours must follow applicable laws.

Although ISPO has requirements for minimum wage and a payroll system, it does not have a requirement for employment contracts.



Table S4. Summary of how concerns over Employment Contracts are addressed in each standard

Wages	RSPO	ISCC	SAN	ISPO
Score	1	1	1	3
Main Provision	<p>Criterion 6.5 - Pay and conditions for employees and for contract workers always meet at least legal or industry minimum standards and are sufficient to provide decent living wages.</p> <p>Indicator 6.5.1 - Documentation of pay and conditions shall be available.</p> <p>Indicator 6.5.2 - Labour laws, union agreements or direct contracts of employment detailing payments and conditions of employment (e.g., working hours, deductions, overtime, sickness, holiday entitlement, maternity leave, reasons for dismissal, period of notice, etc.) shall be available in the languages understood by the workers or explained carefully to them by a management official.</p> <p>Criterion 6.10 - Growers and millers deal fairly and transparently with smallholders and other local businesses.</p> <p>Indicator 6.10.3 - Evidence shall be available that all parties understand the contractual agreements they enter into, and that contracts are fair, legal and transparent.</p> <p>Appendix 1 - Protection of Plantation Workers: ILO Convention 110 (1958) Plantations, Articles 5-91: Protection of members of families of recruited workers; protection of workers' rights during recruitment and transport; fair employment contracts; abolition of penal sanctions; fair wages and conditions of work; no coercion or obligation to use company stores; adequate accommodation and conditions; maternity protection; compensation for injuries and accidents; freedom of association; right to organise and collective bargaining; proper labour inspection; decent housing and medical care.</p>	<p>Criterion 4.13 - There are records that provide an accurate overview of all employees (including seasonal workers and subcontracted workers on the farm) and indicate full names, a job description, date of birth, date of entry, wage and the period of employment. (Minor)</p> <p>Criterion 4.15 - All employees are provided with fair legal contracts. Copies of working contracts can be shown for every employee indicated in the records. These have been signed by both the employee and the employer. (Minor)</p>	<p>Criterion 5.4 - The farm must have payment policies and procedures that guarantee the complete payment of workers on the dates agreed upon in the labor contract. Payment must take place at the workplace, or by another arrangement agreed upon by the worker. The farm must provide the worker with a detailed and comprehensive explanation of the salary paid and of any deductions made, allowing the worker to appeal in the case of perceived discrepancies. Farms with ten or more full- or part-time permanent employees must maintain an up-to-date written payroll and job description for each employee with the following information, which employees must have access to:</p> <ol style="list-style-type: none"> Worker's name, national identity card number, and position; Job description and assigned salary; Minimum salary established by the government according to the type of activity; and Weekly working hours established by applicable laws for the type of activity, and a comparison with the number of hours assigned each worker. 	Not mentioned

B. Wages

All four of the standards have a provision for workers to be paid at least minimum wage (Table S5). Some provide more detailed provisions on overtime, per piece or quota systems, and discretionary income.

RSPO requires that pay and living conditions meet the basic legal or industry standard minimum and are sufficient to provide decent living wages. Decent living wages are defined as the legal minimum unless the national interpretation of the RSPO standard provides an alternate definition.

ISCC also requires that living wages meet at least legal or industry minimum standard and that wages must be enough to meet basic needs and provide some discretionary income. Overtime should also be set at a premium rate.

SAN has a critical criterion requiring “legal remuneration greater than or equal to the regional average or the legally established minimum wage, whichever is greater, according to their specific job.” It also states that work paid for by piece or quota must be on par with the equivalent of minimum wage over an eight hour workday under normal conditions.

ISPO requires that minimum wage regulations are followed.



Table S5. Summary of how concerns over Employment Wages are addressed in each standard

Wages	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 6.5 - Pay and conditions for employees and for contract workers always meet at least legal or industry minimum standards and are sufficient to provide decent living wages.</p> <p>Indicator 6.5.1 - Documentation of pay and conditions shall be available.</p> <p>Indicator 6.5.2 - Labour laws, union agreements or direct contracts of employment detailing payments and conditions of employment (e.g., working hours, deductions, overtime, sickness, holiday entitlement, maternity leave, reasons for dismissal, period of notice, etc.) shall be available in the languages understood by the workers or explained carefully to them by a management official.</p> <p>National interpretation (NI) will define a <i>Decent Living Wage</i>. Where there is no NI, the legal minimum wage will be used.</p>	<p>Criterion 4.6 - The farm does pay a living wage, which meets at least legal, or industry minimum standards. (Major)</p> <p>Instruction 4.6 - The company's pay slips demonstrate that living wages meet at least legal or industry minimum standards and are sufficient to meet basic needs of personnel and to provide some discretionary income.</p> <p>Criterion 4.18 - Pay slips document the conformity of payment with at least legal regulations and/or collective bargaining agreements. (Minor)</p> <p>Instruction 4.18 - Wages and overtime payment documented on the pay slips are in line with legal regulations (minimum wages) and/or collective bargaining agreements (if applicable). If payment is calculated per unit, employees (on average) shall be able to gain the legal minimum wage within regular working hours.</p>	<p>Criterion 5.5 (<i>Critical Criterion</i>) - Workers must receive pay in legal remuneration greater than or equal to the regional average or the legally established minimum wage, whichever is greater, according to their specific job. In cases where the salary is negotiated through collective bargaining or other pact, the worker must have access to a copy of this document during the hiring process. For production, quota or piecework, the established pay rate must allow workers to earn a minimum wage based on an eight-hour workday under average working conditions, or in cases where these conditions cannot be met.</p>	<p>Criterion 4.2 - Welfare and capacity building of workers/laborers</p> <p>Indicator 4.2 - (1) Implementation of minimum wage regulations</p> <p>Indicator 4.2 - (2) A standard payroll system has been established.</p> <p>Guidance 4.2 - (a) Minimum wages are paid in accordance with the relevant local minimum wage.</p>

Wages	RSPO	ISCC	SAN	ISPO
Main Provisions	(Note: The Indonesian NI does not define a Decent Living Wage, but, based on the 2007 version of the RSPO P&C, provides guidance stating that deductions should not jeopardize a decent living wage.)	Instruction 4.17 - Documented working hours, breaks and rest days are in line with legal regulations and/or collective bargaining agreements. Records indicate that regular weekly working hours do not exceed 48 hours. This is N/A for supervisors or management. Rest breaks/days are also documented during peak season. Overtime shall be voluntary and shall always be compensated at a premium rate.		

C. Other Conditions and Benefits

Other conditions and employment benefits aside from direct wages include overtime, insurance, sick holiday or maternity leave, social security, and dismissal. All of the standards require that certain benefits be included in the contract (Table S6). RSPO has a list of benefits that need to be included but does not provide guidance on content. ISCC and SAN provide more specific detail on working hours. SAN uniquely provides instruction on severance. Neither ISCC nor SAN's criteria are mandatory. ISPO only states that employees/workers must be enrolled in the government's social security program, as per applicable regulations.

RSPO has an indicator that requires contracts or agreements to detail conditions of employment, providing the following examples: working hours, deductions, overtime, sickness, holiday entitlement, maternity leave, reasons for dismissal, period of notice, etc. It also has guidance that states that children above the national minimum school leaving age, or at least 15 years old, may be employed, but working hours must be clearly defined.

ISCC requires that the person in charge of worker health, safety, and good social practice have knowledge of and/or access to regulations or agreements relating to working arrangements, including: gross and minimum wages, working hours, union membership, anti-discrimination, child labor, labor contracts, holiday and maternity leave, medical care and pension/gratuity, and regular two-way communication. Children within the compulsory age of schooling must not be employed during work hours. A recording system must be in place to record daily hours and overtime. Regular working hours should not exceed 48 hours in one week. Rest days/breaks should be documented during peak season. If paid per unit, the legal minimum wage should be acquired during regular working hours. Although these are the most detailed instructions on working hours, all but the child labor requirements are ranked “minor musts”, meaning that they are not mandatory, therefore weakening the strength of the criteria.

SAN has two criteria that relate to working hours, both non-critical. The first criterion requires working hours, rest periods during the work day, the number of annual paid vacation days, holidays, and rest days comply with current labor laws. At a minimum, the conditions must ensure that there is a maximum of 48 hours worked in a week, a minimum of 24 hours of rest for every six days worked, and annual paid vacation of one day for each month worked. The second criterion states that overtime must be voluntary, be paid at a higher wage rate than normal pay, and must not exceed 12 hours per week (exceptions exist during high/harvesting season, where it does not violate labor laws). SAN also includes provisions for fair warning if management will be terminating jobs, severance provisions (as per national labor laws, if they exist), and priority placement for current workers to train for new jobs if jobs are being replaced with new mechanized approaches.

ISPO requires employees/workers be enrolled in the employee social security program, as per Indonesian regulations. The government's mandatory employee social security program, *Jamsostek*, is a retirement pension fund and provides limited employee disability, death, and medical benefits.

Table S6. Summary of how concerns over Other Employment Condition and Benefits are addressed in each standard

Other conditions and benefits	RSPO	ISCC	SAN	ISPO
Score	2	2	2	3
Main Provisions	<p>Criterion 6.5 - Pay and conditions for employees and for contract workers always meet at least legal or industry minimum standards and are sufficient to provide decent living wages.</p> <p>Indicator 6.5.1 - Documentation of pay and conditions shall be available.</p> <p>Indicator 6.5.2 - Labour laws, union agreements or direct contracts of employment detailing payments and conditions of employment (e.g., working hours, deductions, overtime, sickness, holiday entitlement, maternity leave, reasons for dismissal, period of notice, etc.) shall be available in the languages understood by the workers or explained carefully to them by a management official.</p>	<p>Criterion 4.7 - The person responsible for workers' health, safety and good social practice and the elected individual(s) of trust have knowledge about and/or access to recent national labour regulations/collective bargaining agreements. (Minor)</p> <p>Instruction 4.7 - The responsible person and the elected person of trust demonstrate awareness and/or access to national regulations concerning: Gross and minimum wages, working hours, union membership, anti-discrimination, child labour, labour contracts, holiday and maternity leave, medical care and pension/gratuity and regular two-way communication.</p> <p>Criterion 4.14 - No minors are employed on the farm. (Major)</p>	<p>Criterion 5.6 - Working hours, rest periods during the workday, the number of annual paid vacation days, holidays, and rest days must comply with current labor laws and with the following minimum conditions:</p> <p>a. The maximum number of hours worked per week must not exceed 48.</p> <p>b. Workers must have a minimum of 24 consecutive hours rest (one day off) for every six consecutive days worked.</p> <p>c. All workers must have the right to annual paid vacation equivalent to a minimum of one day for each month worked (12 days or 2 work weeks per year) or the equivalent for part-time workers.</p> <p>These rights and benefits must be made known to the workers and included in any labor contract or collective agreement.</p>	<p>Criterion 4.2 - Welfare and capacity building of workers / laborers</p> <p>Indicator 4.2 - (1) Implementation of minimum wage regulations</p> <p>Indicator 4.2 - (2) A standard payroll system has been established.</p> <p>Indicator 4.2 - (3) Facilities and infrastructure for workers welfare are available (housing, clinics, places of worship, educational and sports facilities).</p>

Other conditions and benefits	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Guidance 6.6 - Growers and millers should clearly define the minimum working age, together with working hours. Only workers above the minimum school leaving age in the country, or who are at least 15 years old, may be employed. The minimum age of workers will not be less than stated under national regulations. Any hazardous work should not be done by those under 18, as per International Labour Organisation (ILO) Convention 138.</p>	<p>Instruction 4.14 - The minimum age complies with all local and national legislation as well as with ILO Convention 138 and 182. Documents include recording of workers' date of birth and documented evidence that the employer is aware of prevailing legislation. Children within the age of compulsory schooling must not be employed during school hours. Young workers (15-18) must not undertake hazardous work that jeopardizes their health, safety or morals. All forms of slavery or practices similar to slavery, forced or compulsory labour of children is prohibited.</p> <p>Criterion 4.16 - There is a time recording system that shows daily working time and overtime on a daily basis for all employees. (Minor)</p> <p>Instruction 4.16 - There is a time recording system that makes working hours and overtime transparent for employees and employer. Working times of all employees during the last 24 months are documented.</p> <p>Criterion 4.17 - The working hours and breaks of the individual worker are indicated in the time records and comply with legal regulations and/or collective bargaining agreements. (Minor)</p>	<p>Criterion 5.7 - All overtime must be voluntary. The farm must have policies and procedures relating to the requirements and assignation of overtime that conform to current labor laws. These policies and procedures must be made known to workers when they are hired. Overtime must not exceed 12 hours per week. Overtime hours must be paid at a higher rate than normal working hours. When current labor laws permit, this standard allows for an exception period during which the maximum 60 hours (48 normal hours plus 12 overtime hours) per week can be exceeded during seasonal activities or due to unforeseen circumstances, under the following conditions:</p> <ul style="list-style-type: none"> a. Workers must get at least one day off (24 consecutive hours) for every six consecutive days worked. b. The farm must document the number of hours worked (regular and overtime) per day and the activities carried out for each worker. c. The farm must demonstrate through a comparative analysis that overtime hours during the exception period do not result in a higher accident rate than during normal working periods. 	<p>Indicator 4.2 - (4) There is a corporate policy to enroll employees in the employment social security program as per applicable regulations.</p> <p>Indicator 4.2 - (5) Capacity building programs are available for employees.</p> <p>Indicator 4.2 - (6) Records of worker capacity building and welfare improvement efforts are available.</p> <p>Guidance 4.2 - (a) Minimum wages are paid in accordance with the relevant local minimum wage.</p> <p>Guidance 4.2 - (b) List of employees who are enrolled in the social security program</p>

Other conditions and benefits	RSPO	ISCC	SAN	ISPO
Main Provisions		<p>Instruction 4.17 - Documented working hours, breaks and rest days are in line with legal regulations and/or collective bargaining agreements. Records indicate that regular weekly working hours do not exceed 48 hours. This is N/A for supervisors or management. Rest breaks/days are also documented during peak season. Overtime shall be voluntary and shall always be compensated at a premium rate.</p> <p>Criterion 4.18 - Pay slips document the conformity of payment with at least legal regulations and/or collective bargaining agreements. (Minor)</p> <p>Instruction 4.18 - Wages and overtime payment documented on the pay slips are in line with legal regulations (minimum wages) and/or collective bargaining agreements (if applicable). If payment is calculated per unit, employees (on average) shall be able to gain the legal minimum wage within regular working hours.</p>	<p>d. The exception period must not exceed two consecutive work weeks or six work weeks within a two-month period. The average hours worked per week must not exceed 60 hours as calculated during an eight-week period starting from the first day of the exception period.</p> <p>e. No more than two exception periods are allowed each year.</p> <p>f. Workers are not allowed to work more than 12 hours per day.</p> <p>g. In the case of an unforeseen event that causes employees to work more hours than permitted by this standard or applicable labor laws, the farm must document the circumstances and the actions to be taken to avoid repetition in the future.</p> <p>h. In the case of a cyclical event that happens at approximately the same time each year—such as harvesting or production peaks—the farm must present an analysis that indicates that the cost of directly contracting more workers during this period would have a negative impact on the farm’s economic sustainability.</p>	<p>Guidance 4.2 - (c) List of employee training needs and plans</p> <p>Guidance 4.2 - (d) List of employees who have been trained</p>

Other conditions and benefits	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>Criterion 5.13 - The farm must inform permanent and regular seasonal workers— and the workers organizations that represent them—of any plans for changes in the farm:</p> <p>a. Workers who will be replaced by the use of machines or for any other reason due to significant changes in farm management activities or organizational structure must be given priority consideration for opportunities to be contracted in other labors on the farm and must be trained for those new tasks.</p> <p>b. In confirmed cases of job loss and lack of employment opportunities, the farm must provide economic compensation for workers according to national labor legislation. In the absence of national legislation, the labor contract for permanent or seasonal workers must include a severance provision.</p>	

D. Freedom of Association and Bargaining

All of the standards have criteria supporting the employees/workers right to form trade unions and bargain collectively (Table S7). RSPO and ISPO mention the company facilitating the means for workers to establish such unions. RSPO, ISCC, and SAN all refer to ILO Conventions to guide such policies. SAN is the only standard for which this criterion is not mandatory.

RSPO requires that certified companies respect “the rights of all personnel to form and join trade unions of their choice and to bargain collectively.” If such associations are illegal, then the employer should facilitate a means for similar independent and free association and bargaining. Indicators for meeting this criterion include a published statement in local languages and minutes of meetings with trade unions or their representatives. ILO conventions and a UN declaration are referenced to guide development of such practices.

ISCC also has a mandatory criterion stating workers’ rights to form trade unions and bargain collectively, without discrimination or repercussions for doing so. Instructions state that there must be evidence that this freedom is being exercised, or at least not blocked, by allowing effective functioning of worker-committees, where representatives are elected by the workers and trade union members have the ability to fulfill their tasks at least outside of regular working hours. The elected officials must have access to recent national labor regulations/collective bargaining agreements, and have a complete understanding of national regulations related to other employment conditions. ISCC also refers to employment conditions being in accordance with all national and local legislation and ILO Conventions 87 and 98.

SAN has a non-critical criterion stating that workers must have the right to freely organize and collectively bargain as per ILO Conventions 87 and 98. It also states that the company must not impede this right, including the right to organize for ideological, religious, political, economic, social, cultural, or any other reasons.

ISPO requires employers facilitate the formation of trade unions to represent workers’ rights. Indicators of this include company regulations related to the topic, a list of workers that are members of a trade union, and records of meetings between the company and trade union.

Table S7. Summary of how concerns over Freedom of Bargaining and Association are addressed in each standard

Wages	RSPO	ISCC	SAN	ISPO
Scores	1	1	1	1
Main Provision	<p>Criterion 6.6 - The employer respects the rights of all personnel to form and join trade unions of their choice and to bargain collectively. Where the right to freedom of association and collective bargaining are restricted under law, the employer facilitates parallel means of independent and free association and bargaining for all such personnel.</p> <p>Indicator 6.6.1 - A published statement in local languages recognising freedom of association shall be available.</p> <p>Indicator 6.6.2 - Minutes of meetings with main trade unions or workers representatives shall be documented.</p> <p>Guidance 6.6 - The right of employees, including migrant and transmigrant workers and contract workers, to form associations and bargain collectively with their employer should be respected, in accordance with Conventions 87 and 98 of the International Labour Organisation (ILO).</p>	<p>Criterion 4.5 - Workers have the freedom to join labour organizations or organize themselves to perform collective bargaining. Workers must have the right to organize and negotiate their working conditions. Workers exercising this right should not be discriminated against or suffer repercussions. (Major)</p> <p>Instruction 4.5 - All employees are free to establish and to join organizations of their own choice. There is evidence (workers' interviews with self-selected/anonymous workers) that the employer imports the establishment and/or there is no evidence that the employer blocks effective functioning of worker-committees where representatives are elected by the workers. There is evidence of acceptance of Collective Bargaining Agreements. Trade union members are guaranteed the possibility to fulfil their tasks at least outside of the regular working hours.</p> <p>The employment conditions regarding freedom of association and collective bargaining are in accordance with all national and local legislation and ILO Conventions 87 and 98.</p>	<p>Criterion 5.12 - Workers must have the right to freely organize and voluntarily negotiate their working conditions in a collective manner as established in ILO Conventions 87 and 98. The farm must have and divulge a policy guaranteeing this right and must not impede workers from forming or joining unions, collective bargaining or organizing for ideological, religious, political, economic, social, cultural, or any other reasons. The farm must periodically provide opportunities for workers to make decisions regarding their rights and alternatives to form any type of organization for negotiating their working conditions.</p>	<p>Criterion 4.4 - Plantation management should facilitate the formation of trade unions in order to represent employee/worker rights.</p> <p>Indicator 4.4 - (1) Companies have regulations related to the existence of unions.</p> <p>Indicator 4.4 - (2) Companies have a list of workers who are members of trade union.</p> <p>Indicator 4.4 - (3) Records from meeting between the company and union and internal union meetings are available.</p> <p>Guidance 4.4 - (a) The company facilitates the formation of trade unions.</p>

Wages	RSPO	ISCC	SAN	ISPO
Main Provision	<p>Guidance 6.6 - Labour laws and union agreements, or in their absence direct contracts of employment detailing payments and other conditions, should be available in the languages understood by the workers or explained carefully to them by a management official.</p> <p>National Interpretation 6.6 - National Interpretation will define migrant and transmigrant workers. ILO definitions and other international protocols, instruments and explanations should be used throughout.</p> <p>Appendix 1- ILO Convention 87 (1948) Freedom of Association and Protection of Right to Organise; ILO Convention 98 (1949) Right to Organise and Collective Bargaining; ILO Convention 141 (1975) Rural Workers' Organisations; UN Declaration on the Rights of Indigenous Peoples (2007)</p>	<p>Criterion 4.7 - The person responsible for workers' health, safety and good social practice and the elected individual(s) of trust have knowledge about and/or access to recent national labour regulations/collective bargaining agreements. (Minor)</p> <p>Instruction 4.7 - The responsible person and the elected person of trust demonstrate awareness and/or access to national regulations concerning: Gross and minimum wages, working hours, union membership, anti-discrimination, child labour, labour contracts, holiday and maternity leave, medical care and pension/gratuity and regular two-way communication.</p>		<p>Guidance 4.4 - (b) Companies provide guidance to trade unions.</p> <p>Guidance 4.4 - (c) Companies provide facilities for trade union activities.</p>

E. Occupational Health and Safety

Occupational Health and Safety (OH&S) is covered by all of the standards (Table S8). SAN and ISCC address this topic in a particularly detailed and extensive manner. Ironically, the majority of their criteria in this section are not mandatory (i.e., ‘minor must’ for ISCC, and non-critical for SAN), possibly allowing them the freedom to go into such detail. RSPO seems to have met a happy medium, providing sufficient detail and guidance to make clear and progressive requirements compared to real living and operating conditions in Indonesia. ISPO is very brief, hitting only topically on some of the facets of OH&S.

The standards show tremendous diversity in the degree to which they address issues of occupational health and safety (OH&S). ISPO is very streamlined, touching on major points in brief. RSPO is comparatively more comprehensive, covering additional topics in greater detail. ISCC goes further than RSPO, but none near the comprehensiveness of SAN, which contains more than 20 criteria on the topic. OH&S portions of the standards were divided into the following categories for comparison: (1) legal compliance, (2) OH&S plan, (3) training and protective gear, (4) First aid/Emergency response, (5) communication, (6) medical, (7) ILO Conventions, and (8) other.

- (1) ISCC and SAN require compliance with applicable laws related to OH&S. RSPO and ISPO standards do not mention this in their OH&S sections, but RSPO does require compliance with all applicable laws, and ISPO makes mention of reporting to the Ministry of Manpower and Transmigration as per applicable regulations.
- (2) All of the standards require an OH&S plan or system that focuses on identifying potential risks and minimizing them. Only RSPO mentions the process of monitoring and evaluation.
- (3) Training and protective gear is extensively addressed under SAN and ISCC, and sufficiently addressed in RSPO. ISPO makes very limited mention of training, with guidance stating that OH&S training must take place along with a campaign to socialize the information, and another guidance stating that a trained team should be available for handling pesticides. It has one vague criterion (4.1.2) that could possibly cover protective gear; it states that OH&S organization is formed and supported with the necessary facilities and infrastructure.
- (4) First aid and emergency response elements are well covered in RSPO, ISCC, and SAN, with ISCC and SAN again providing the most detail. Although ISPO does not make specific mention of these elements of OH&S, they are inherent in Indonesia’s Health and Safety Management System (SMK3) that is required by the standard.
- (5) RSPO, ISCC, and SAN all have provisions for direct communication and involvement of workers in reviewing and addressing OH&S issues. ISPO has guidance stating that an OH&S campaign should take place to socialize related issues, but it does not make mention of individuals responsible, committees, and worker involvement as with the other standards.

- (6) Requirements for medical coverage vary markedly between the standards. RSPO has an indicator that states, “All workers shall be provided with medical care and covered by accident insurance.” ISPO has requirements for accident insurance via the government social security program (Jamsostek), which provides very limited health care and accident coverage. It also requires that clinics be available to workers. The standard also provides guidance stating that workers in high accident risk positions must have regular health checks. SAN has a non-critical criterion stating that high-risk employees must have annual medical examinations, access to their test results, and timely treatment by medical personnel if they have expressed or been observed to have medical (physical or mental) issues. It also gives very specific instructions about who should be able to apply agrochemicals, based on their age and health status. ISCC has a non-mandatory criterion stating that incentives, including medical care/health provisions, should be offered to employees.
- (7) Both RSPO and ISCC make mention of ILO conventions on OH&S. RSPO states that the OH&S plan should reflect guidance in ILO Convention 184. ISCC states that criteria in its human rights section (Principle 4) - including the medical provision mentioned above - are based on ILO Conventions. SAN’s Principle 5 has a non-binding summary of the principle that states workers and their families should benefit from rights and conditions established by ILO conventions. ISPO does not make mention of ILO conventions.
- (8) Other facets of OH&S that are covered by individual standards include:
- RSPO: An indicator requiring a Lost Time Accident (LTA) metric to record occupational injuries
 - ISCC: A criterion requiring labeling of hazardous areas (Minor); Criterion requiring habitable living quarters with basic services, including running water, toilets and drains (Minor); Criteria preventing overexposure to agrochemicals by establishing re-entry times and providing access to clean food eating, washing, and storage areas (both Minor)
 - SAN: A criterion requiring procedures to limit access to hazardous areas; Extensive instructions on storing and transporting agrochemicals; Criteria protecting workers from exposure to agrochemicals and the elements
 - ISPO: No additional requirements

Refer to Table OH&S for word-for-word text in the standards on OH&S.

Table S8. Summary of how concerns over OH&S are addressed in each standard*

OH&S	RSPO	ISCC	SAN	ISPO
Score	1	1	1	2
Main Provisions	Criterion 4.7 - An occupational health and safety plan is documented, effectively communicated and implemented.	<p>Principle 3 - Safe working conditions through training and education, use of protective clothing and proper and timely assistance in the event of accidents</p> <p>Principle 4 - Biomass production shall not violate human rights labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations.</p>	Principle 6 - Occupational health and safety	Principle 4 - Responsibilities to workers

F. Living Conditions

All of the standards have provisions for housing (Table S9). SAN goes to the extreme, providing specifics of housing structures and facilities, while ISPO is at the other extreme, simply stating that housing must be available. RSPO and ISCC are more intermediary, requiring adequate housing with basic services, such as potable water.

RSPO requires employers to provide adequate housing and potable water to meet or exceed national standards where no such public facilities are available or accessible. Guidance for temporary or migrant workers also requires the employer to provide decent living conditions.

ISCC has a non-mandatory criterion requiring on site facilities be habitable and have basic services and facilities, including a sound roof, windows, doors, running water, toilets, and drains.

SAN has extensive non-critical requirements on housing for both permanent and temporary workers, whereby housing must provide safe, healthy, and hygienic conditions. Housing must be separate from agrochemical storage areas and production areas. The standard provides a table to determine the distance of separation based on agrochemicals used and other environmental conditions. Housing conditions must comply with applicable laws, down to the furniture! In the absence of laws, they specify what housing quarters should look like at a minimum - ceiling height, space per person for sleeping areas, beds at least 20 cm above the ground, heating facilities in cold climates, cooking facilities, etc. SAN has a separate criterion focused on securing potable water for all employees (and their families) living on the farm and protecting sources of potable water.

ISPO has a criterion requiring the company make housing facilities available for workers.

Table S9. Summary of how concerns over Living Conditions are addressed in each standard

Living Conditions	RSPO	ISCC	SAN	ISPO
Score	1	1	1	2
Main Provisions	<p>Criterion 5.6 - Pay and conditions for employees and for contract workers always meet at least legal or industry minimum standards and are sufficient to provide decent living wages.</p> <p>Indicator 6.5.3 - Growers and millers shall provide adequate housing, water supplies, medical, educational, and welfare amenities to national standards or above, where no such public facilities are available or accessible.</p> <p>Criterion 6.12 - No forms of forced or trafficked labour are used.</p> <p>Indicator 6.12.3 - Where temporary or migrant workers are employed, a special labour policy and procedures shall be established and implemented.</p>	<p>Sub-criterion 3.1.9 - On site living quarters are habitable and have the basic services and facilities. (Minor)</p> <p>Instruction 3.1.9 - Living quarters for the workers on the farm are habitable, have a sound roof, windows and doors, and have the basic services of running water, toilets and drains.</p>	<p>Criterion 5.14 - Housing provided by the farm for permanent or temporary workers living there must be well-designed, built and maintained to foster good hygienic, health and safety conditions. Living quarters must be separated from production areas. The farm must seek alternatives for relocating housing or camps that are currently within production areas. Workers and their families living on the farm must have access to recreation areas according to the composition of inhabitants. The design, size and construction of dormitories, barracks and other housing, type and quantity of furniture, and number and location of sanitary facilities, showers, and washing and cooking areas must comply with applicable laws. In absence of applicable laws the following elements and characteristics apply:</p> <ol style="list-style-type: none"> Dormitories must be constructed with wooden floors above the ground or floors made from asphalt or concrete, roofs in good condition without leaks, and with appropriate ventilation and lighting. Ceiling must not be lower than 2.5 meters at any point. There must be five square meters of space per person in sleeping areas. Heat shall be provided for cold climates. 	<p>Criterion 4.2 - Welfare and capacity building of workers/laborers</p> <p>Indicator 4.2 - (3) Facilities and infrastructure for workers welfare are available (housing, clinics, places of worship, educational, and sports facilities).</p>

Living Conditions	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Guidance for 6.12.3 - The special labour policy should include:</p> <p>Statement of the non-discriminatory practices;</p> <p>No contract substitution;</p> <p>Post-arrival orientation programme to focus especially on language, safety, labour laws, cultural practices etc.; and</p> <p>Decent living conditions to be provided.</p>		<p>e. Bed, hammock or other dignified infrastructure for sleeping must be provided according to the workers' cultural needs, at least 20 centimeters above the ground. The space in between bunk beds is greater than or equal to 120 centimeters and 90 centimeters between each bed.</p> <p>f. Basic furniture is supplied for storing personal belongings.</p> <p>g. The sanitary facilities must comply with the following characteristics: one toilet for every 15 persons; one urinal for every 25 men; sufficient supply of toilet paper; a minimum distance of 30 meters from dormitories, eating areas and kitchens; one washbasin for every six persons, or per family.</p> <p>h. There must be one shower per ten persons, separated by gender.</p> <p>i. There must be one large laundry sink for every 30 persons.</p> <p>j. In the absence of a kitchen service (kitchen and dining hall provided by the farm), there must be installations outside the living areas for preparing and eating food and for washing kitchen utensils. There must be one cooking installation per 10 persons or for every two families.</p>	

Living Conditions	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>Criterion 5.15 - All workers of the farm and persons living on the farm must have access to potable water. Sufficient supply of potable water must be provided to all workers and must be available at the work site. The farm must be able to demonstrate that the water provided complies with the physical and chemical parameters and other characteristics established in applicable laws or in their absence, with the following critical parameters defined by the World Health Organization (WHO): (refer to table in published standard).</p> <p>Non-family farms that obtain water from their own sources— water not supplied by aqueducts managed by other entities— must have a periodic drinking water monitoring and analysis program that includes:</p> <ul style="list-style-type: none"> a. Identification of water sources on a map and on the farm; b. Policies and procedures for guaranteeing the protection of water sources; c. Sampling procedures and sampling locations and frequency; d. Analyses conducted by a legally recognized laboratory (certified or authorized); and e. A record of the results for the last three years or since the certification process was initiated. <p>Additional analysis may be requested in order to ensure quality when evidence of direct or indirect contamination (such as erosion) of surface or underground water exists.</p>	

Living Conditions	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>Criterion 6.11 - The farm must demonstrate that the locations of agrochemical and fuel storage areas comply with applicable laws. If applicable legislation does not exist and if the design, construction and management of these facilities do not comply with some or all of the requirements indicated in Criteria 6.7 to 6.10, the following separations must be maintained:</p> <ul style="list-style-type: none"> a. Sixty meters from buildings used by people on a daily basis (housing, health centers, schools, recreation areas, offices, etc.); b. One hundred meters from public roads; c. One hundred and twenty meters from rivers, streams and lakes; d. Two hundred meters from water wells or springs used for human consumption; and e. For agrochemical storage facilities, at least 50 meters from fuel storage tanks. 	

G. Human Rights

RSPO and ISCC explicitly state that companies must have a policy on human rights and reference the ILO conventions and UN declarations. SAN has a principle on human rights that refers to the ILO and UN conventions and recommendations, but does not require a policy specific to this issue. ISPO does not make specific mention of human rights, but covers elements of it in its standard (Table S10).

RSPO has a criterion that solely addresses human rights. The standard requires growers and millers to respect human rights, showing this commitment with a policy on the topic that is made available and communicated to all levels of the work force and operations. The company must ensure that contracted third parties also abide by this policy. RSPO refers to the UN Guiding Principles on Business and Human Rights and an RSPO working group on human rights exists to address this issue.

ISCC states that biomass production may not violate human rights, with instructions to recognize ILO Conventions related to this issue. In addition to compliance with these conventions, companies must comply with relevant local and national laws. As with RSPO, ISCC requires a company policy, one that references ILO core labour and is written in languages understandable to workers and surrounding communities.

SAN's summary of Principle 5 describes how all workers and families that live on SAN certified farms will benefit from the conditions established in the UN's Universal Declaration of Human Rights and Children's Rights Convention as well as the ILO conventions and recommendations. Although the term 'human rights' is not mentioned in the binding portion of the P&C, issues covered under these conventions are addressed in the standard. The document listing the P&C states that the UN Universal Declaration on Human Rights was one of the sources from which ideas were adapted for this standard.

ISPO makes only one mention of human rights, in an indicator related to legal compliance, where it requires companies to register as a legal entity with the Ministry of Law and Human Rights. The standard covers some aspects of human rights, including all of those covered under the ILO Declaration on Fundamental Principles and Rights at Work, including freedom of association and collective bargaining, no forced or child labor, and no discrimination. Indonesia is also a member of the UN. The standard would be strengthened by a clear statement on human rights, a policy to support that statement, and mention of these international guidelines.

Table S10. Summary of how concerns over Human Rights are addressed in each standard

Human Rights	RSPO	ISCC	SAN	ISPO
Score	1	1	2	2
Main Provisions	<p>Criterion 6.13 - Growers and millers respect human rights.</p> <p>Indicator 6.13.1 - A policy to respect human rights shall be documented and communicated to all levels of the workforce and operations (see Criteria 1.2 and 2.1).</p> <p>Guidance 6.13 - See also Criterion 6.3. All levels of operations will include contracted third parties (e.g., those involved in security).</p> <p>Note 6.13 - From the UN Guiding Principles on Business and Human Rights: <i>The responsibility of business enterprises to respect human rights refers to internationally recognised human rights - understood, at a minimum, as those expressed in the International Bill of Human Rights and the principles concerning fundamental rights set out in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work</i></p>	<p>Principle 4 -Biomass production shall not violate human rights, labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations.</p> <p>Instruction 4 - The criteria listed here are based on internationally recognized requirements concerning social aspects (International Labour Organization, core ILO standards: ILO 29, 105, 138, 182, 87, 98, 100, 111). In addition, compliance with relevant national and local laws is required.</p> <p>Criterion 4.1 - A self-declaration on good social practice regarding human rights has been communicated to the employees and signed by the farm management and the employees' representative. (Minor)</p>	<p>Summary of Principle 5 (Not binding for audit purposes) - All employees working on certified farms, and the families that live on these farms, benefit from the rights and conditions established in the United Nations' Universal Declaration of Human Rights and Children's Rights Convention, and in the International Labor Organization's (ILO) conventions and recommendations. Farms pay salaries and benefits equal or more than the legal minimum, and the workweek and working hours must not exceed the legal maximums or those established by the ILO. Workers may organize and associate freely, especially for negotiating working conditions. Certified farms do not discriminate and do not use forced or child labor; to the contrary, these farms work to offer employment opportunities and education to people in neighboring communities. Housing provided by certified farms is in good condition, and has potable water, sanitary facilities and domestic waste collection. Families living on certified farms have access to medical services and the children have access to education.</p> <p>Sources: Ideas for this document have been adapted from the following sources: United Nations. Universal Declaration of Human Rights: www.un.org/Overview/rights.html</p>	<p>Criterion 1.6 - Oil palm plantation must be managed by a clear legal entity in compliance with applicable legislation.</p> <p>Indicator 1.6 - The company has already obtained legal documents in the form of a notarial deed that has been approved by the Ministry of Law and Human Rights.</p>

Human Rights	RSPO	ISCC	SAN	ISPO
Main Provisions	<p data-bbox="329 293 728 421"><i>("The corporate responsibility to respect human rights" in Guiding Principles on Business and Human Rights).</i></p> <p data-bbox="329 464 728 719">The RSPO Working Group on Human Rights will provide a mechanism to identify, prevent, mitigate and address human rights issues and impacts. The resulting Guidance will identify the relevant issues on human rights to all RSPO members.</p> <p data-bbox="329 762 728 986">Guidance 6.3 - Refer to helpful texts for guidance, such as the Human Rights Commission (HRC) endorsed <i>'Guiding Principles on Business and Human Rights: Implementing the UN "Protect, Respect and Remedy" Framework'</i>, 2011.</p> <p data-bbox="329 1029 728 1150">Criterion 2.1 - There is compliance with all applicable local, national and ratified international laws and regulations.</p>	<p data-bbox="745 293 1164 810">Instruction 4.1 - The farm management and the employee's representative have signed and displayed a self-declaration assuring good social practice and human rights of all employees. The self-declaration must be in language appropriate to workers and surrounding communities. This declaration contains commitment to the ILO core labour standards, respect for living wage, respect for the social environment, respect for legal land titles, sufficient compensation for communities, commitment to solve social conflicts, fair contract farming arrangements.</p>	<p data-bbox="1182 293 1800 485">Criterion 5.11 - The farm and supervisors must not threaten; sexually abuse or harass; or verbally, physically or psychologically mistreat workers for any reason. The farm must encourage the respectful treatment of workers and have a formal mechanism to act upon workers' claims of mistreatment.</p>	

H. Forced Labor

RSPO, ISCC, and SAN all have mandatory criteria prohibiting use of forced labor (Table S11) - ISPO does not. RSPO and SAN provide greater detail, for example, stating that passports of migrant workers can only be surrendered voluntarily and that debts or deductions should not be withheld such that it violates workers' rights by law or prevents them from earning a decent living wage. ISCC states very little in its criterion, instead requiring compliance with ILO Convention 29 and 105 on forced labor. It does make a statement in its child labor section that slavery and any similar forms of forced or compulsory labor are prohibited. ISPO makes no mention of forced labor.

Note: No further text in this section.



Table S11. Summary of how concerns over Forced Labor are addressed in each standard

Forced Labor	RSPO	ISCC	SAN	ISPO
Score	1	1	1	3
Main Provisions	<p>Criterion 6.12 - No forms of forced or trafficked labour are used.</p> <p>Indicator 6.12.1 - There shall be evidence that no forms of forced or trafficked labour are used.</p> <p>Guidance for 6.12.1 - Workers should enter into employment voluntarily and freely, without the threat of a penalty, and should have the freedom to terminate employment without penalty given reasonable notice or as per agreement.</p> <p>Indicator 6.12.2 - Where applicable, it shall be demonstrated that no contract substitution has occurred.</p> <p>Indicator 6.12.3 - Where temporary or migrant workers are employed, a special labour policy and procedures shall be established and implemented.</p> <p>Guidance for 6.12.3 - The special labour policy should include: Statement of the non-discriminatory practices; No contract substitution; Post-arrival orientation programme to focus especially on language, safety, labour laws, cultural practices etc.; and</p>	<p>Criterion 4.4 - There is no indication of forced labour at the farm. (Major)</p> <p>Instruction 4.4 - There must be no use of forced, bonded or involuntary labour as meant in ILO Convention 29 and 105.</p> <p>Criterion 4.14 - No minors are employed on the farm. (Major)</p> <p>Instruction 4.14 - The minimum age complies with all local and national legislation as well as with ILO Convention 138 and 182. Documents include recording of workers' date of birth and documented evidence that the employer is aware of prevailing legislation. Children within the age of compulsory schooling must not be employed during school hours. Young workers (15-18) must not undertake hazardous work that jeopardizes their health, safety or morals. All forms of slavery or practices similar to slavery, forced or compulsory labour of children is prohibited.</p>	<p>Criterion 5.10 (<i>Critical Criterion</i>) - Any type of forced labor is prohibited, including working under the regimen of imprisonment, in agreement with International Labor Organization (ILO) Conventions 29 and 105 and national labor laws. The farm does not withhold any part or all of workers' salaries, benefits or any rights acquired or stipulated by law, or any of the workers' documents, in order to force them to work or stay on the farm, or as a disciplinary action. The farm does not use extortion, debt, threats or sexual abuse or harassment, or any other physical or psychological measure to force workers to work or stay on the farm, or as a disciplinary measure.</p>	

Forced Labor	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Decent living conditions to be provided.</p> <p>Guidance 6.12 - Migrant workers should be legalised, and a separate employment agreement should be drawn up to meet immigration requirements for foreign workers and international standards. Any deductions made should not jeopardise a decent living wage.</p> <p>Guidance 6.12 - Passports should only be voluntarily surrendered. There should be evidence of due diligence in applying this to all sub-contract workers and suppliers. National guidance should be used on contract substitution.</p> <p>National Interpretation 6.12 - National Interpretation will define the following: temporary workers; migrant workers; special labour policy; contract substitution; and decent living wage. International Labour Organisation (ILO) definitions (ILO Convention 29 and 105) and other international protocols, instruments and explanations should be used throughout. See Criterion 6.5 for further guidance.</p> <p>(Note: This criterion is new to the latest revision of the RSPO P&C, therefore, no NI currently exist for this criterion.)</p>			

I. Child Labor

All of the standards have mandatory child labor criteria. SAN provides the most detailed guidance on different age groups and work restrictions. RSPO and ISCC also provide clear guidelines, both referring to ILO conventions to further define their position on child labor. ISPO has a criterion generally prohibiting child labor, but it does not provide any information on age or categories and associated restrictions.

All of the standards have criteria prohibiting child labor (Table S12). RSPO states that children must be at least at the legal school leaving age or at least 15 years old to be employed. National labor laws are to be followed and children under 18 should not be given hazardous work, as per ILO Convention 138. The company should have a policy defining their position on this and must have records that employees meet age requirements.

ISCC minimum age requirements defer to local and national laws as well as ILO Convention 138 and 182. Different to RSPO, ISCC states that children that are not of school leaving age can be employed so long as it is not during school hours, but if under 18 they may not be employed to do hazardous work. ISCC reinforces the forced labor criterion, stating that children may not be forced into slavery, or similar compulsory labor.

SAN prohibits the employment of full- or part-time workers under the age of 15. SAN requires countries that have ratified ILO 138 on forced labor adhere to its recommendations, including that on age. Farms that hire children between the ages of 15 and 17 must keep records, which, in addition to personal and employment information, must include a signed authorization for employment from the parents or legal guardian. SAN also restricts working hours for this age group to 8 hours per day (and no more than 42 hours per week), prohibits their work to compromise schooling, and disallows working with agrochemicals or jobs that require strong physical exertion. The standard goes into more specific work restrictions for children between the ages of 12 and 14, only allowing them to work if it is alongside family and part of a cultural tradition.

ISPO simply states that child labor may not be used, but does not define what age is considered a child, or particular restrictions for different age groups.

Table S12. Summary of how concerns over Child Labor are addressed in each standard

Child labor	RSPO	ISCC	SAN	ISPO
Score	1	1	1	2
Main Provisions	<p>Criterion 6.7 - Children are not employed or exploited.</p> <p>Indicator 6.7.1 - There shall be documentary evidence that minimum age requirements are met.</p> <p>Guidance 6.7 - Growers and millers should clearly define the minimum working age, together with working hours. Only workers above the minimum school leaving age in the country or who are at least 15 years old may be employed. The minimum age of workers will not be less than stated under national regulations. Any hazardous work should not be done by those under 18, as per International Labour Organisation (ILO) Convention 138.</p>	<p>Criterion 4.14 - No minors are employed on the farm. (Major)</p> <p>Instruction 4.14 - The minimum age complies with all local and national legislation as well as with ILO Convention 138 and 182. Documents include recording of workers' date of birth and documented evidence that the employer is aware of prevailing legislation. Children within the age of compulsory schooling must not be employed during school hours. Young workers (15-18) must not undertake hazardous work that jeopardizes their health, safety or morals. All forms of slavery or practices similar to slavery, forced or compulsory labour of children is prohibited.</p>	<p>Criterion 5.8 (<i>Critical Criterion</i>) - It is prohibited to directly or indirectly employ full- or part-time workers under the age of 15. In countries where the ILO Conventions have been ratified, the farm must adhere to Convention 138, Recommendation 146 (minimum age). Farms contracting minors between the ages of 15 and 17 must keep a record of the following information for each minor:</p> <ul style="list-style-type: none"> a. First and last name; b. Date of birth (day, month and year); c. First and last name of parents or legal guardian; d. Place of origin and permanent residence; e. Type of work carried out on the farm; f. Number of hours assigned and worked; g. Salary received; and h. Written authorization for employment signed by parents or legal guardian. <p>Workers between 15 and 17 years old must not work more than eight hours per day or more than 42 hours per week. Their work schedule must not interfere with educational opportunities. These workers must not be assigned activities that could put their health at risk, such as the handling and application of agrochemicals or activities that require strong physical exertion.</p>	<p>Criterion 4.3 - The use of child labor and worker discrimination (ethnic group, race, gender, religion): Plantation managers may not employ minors of discriminate.</p> <p>Indicator 4.3 - (1) Companies have a policy regarding worker age requirements that follows applicable legislation.</p> <p>Indicator 4.3 - (2) The company has a policy regarding equal treatment and opportunities for employment.</p> <p>Indicator 4.3 - (3) A list of employees is kept.</p> <p>Indicator 4.3 - (4) A mechanism for workers to report complaints and grievances is in place.</p> <p>Indicator 4.3 - (5) Recorded complaints and grievances are kept on record.</p> <p>Guidance 4.3 - (a) SOP for hiring new workers/employees</p> <p>Guidance 4.3 - (b) No underage workers were found</p>

Child labor	RSPO	ISCC	SAN	ISPO
Main Provisions	Guidance 6.7 - Please refer to <i>'Guidance for Independent Smallholders under Group Certification'</i> , June 2010, and <i>'Guidance on Scheme Smallholders'</i> , July 2009 for additional guidance on family farms.		<p>Criterion 5.9 - When applicable laws permit, minors between 12 and 14 years old may work part-time on family farms, only if they are family members or neighbors in a community where minors have traditionally helped with agricultural work. The schedule for these minors including school, transportation and work must not exceed ten hours on school days or eight hours on non-school days, and must not interfere with educational opportunities. The following conditions must be fulfilled:</p> <ul style="list-style-type: none"> a. These workers must have the right to one rest day for every six days worked and rest breaks during the workday the same as or more frequently than contracted workers. b. They must not form part of the farm's contracted workforce. c. They must not work at night. d. They must not handle or apply agrochemicals or be in areas where they are being applied. e. They must not carry heavy loads nor do work that requires physical exertion unsuitable for their age. f. They must not work on steep slopes (more than 50% incline) or in high places (ladders, trees, roofs, towers or similar places). 	Guidance 4.3 - (c) The company is responsible for maintaining the workers safety and sense of well-being.

Child labor	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>g. They must not operate or be near heavy machinery.</p> <p>h. They must not do any type of work that may affect their health or safety.</p> <p>i. They must get periodical training for the work they do.</p> <p>j. They must be under the supervision of a responsible adult in order to guarantee that they understand how to do their work safely.</p> <p>k. Transportation must be provided to and from home if workers have to travel in the dark or in conditions that put their personal safety at risk.</p>	

J. Child Access to Education

SAN and ISCC make explicit requirements for child access to education while living on the farm (Table S13). SAN specifies school-age children, presumably meaning through high school, whereas ISCC only states primary-school aged children. RSPO and ISPO have indicators related to employee welfare, which include access to educational facilities, presumed to be for the children of employees/workers.

RSPO does not make an explicit statement on access to education for children, but it does require that companies provide education amenities to meet or exceed national standards where no such public facilities are available or accessible.

ISCC has a mandatory criterion that specifically addresses child access to education, stating that all children living on the farm must have access to quality primary school education via public transport or on-site schooling. Primary schooling age is defined as per national legislation.

SAN has a non-critical criterion that requires certified farms to guarantee access to nationally standardized education to school-aged children. Additional criteria are targeted at child workers, restricting the number of hours they are allowed to work, and ensuring that work does not interfere with their health and education.

ISPO does not make specific mention of children, but does have a criterion with an indicator of employee welfare that includes the availability of educational facilities, presumably for families of employees.



Table S13. Summary of how concerns over Child Access to Education are addressed in each standard

Child access to education	RSPO	ISCC	SAN	ISPO
Score	1	1	2	2
Main Provisions	<p>Criterion 6.5 - Pay and conditions for employees and contract workers always meet at least legal or industry minimum standards and are sufficient to provide decent living wages.</p> <p>Indicator 6.5.3 - Growers and millers shall provide adequate housing, water supplies, medical, educational and welfare amenities to national standards or above, where no such public facilities are available or accessible.</p>	<p>Criterion 4.12 - All children living on the farm have access to quality primary school education. (Major)</p> <p>Instruction 4.12 - All children at primary schooling age (according to national legislation) living on the farm must have access to primary school education, either through provided transport to a public primary school or through adequate on-site schooling. This is in accordance with the International Covenant on Economic, Social and Cultural Rights, Art. 13.</p>	<p>Criterion 5.17 - The farm must have mechanisms to guarantee access to education for the school-age children that live on the farm. Schools established and administered by certified farms must have the necessary resources, personnel and infrastructure to be able to provide an educational experience that complies with national legal requirements.</p> <p>Criterion 5.8 (<i>Critical Criterion</i>) - It is prohibited to directly or indirectly employ full- or part-time workers under the age of 15. In countries where the ILO Conventions have been ratified, the farm must adhere to Convention 138, Recommendation 146 (minimum age). Farms contracting minors between the ages of 15 and 17 must keep a record of the following information for each minor:</p> <ol style="list-style-type: none"> First and last name; Date of birth (day, month and year); First and last name of parents or legal guardian; Place of origin and permanent residence; Type of work carried out on the farm; Number of hours assigned and worked; Salary received; and Written authorization for employment signed by parents or legal guardian. 	<p>Criterion 4.2 - Welfare and capacity building of workers/laborers</p> <p>Indicator 4.2 - (3) Facilities and infrastructure for workers welfare are available (housing, clinics, places of worship, educational and sports facilities)</p>

Child access to education	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>Workers between 15 and 17 years old must not work more than eight hours per day or more than 42 hours per week. Their work schedule must not interfere with educational opportunities. These workers must not be assigned activities that could put their health at risk, such as the handling and application of agrochemicals or activities that require strong physical exertion.</p> <p>Criterion 5.9 - When applicable laws permit, minors between 12 and 14 years old may work part-time on family farms, only if they are family members or neighbors in a community where minors have traditionally helped with agricultural work. The schedule for these minors including school, transportation and work must not exceed ten hours on school days or eight hours on non-school days, and must not interfere with educational opportunities. The following conditions must be fulfilled:</p> <ul style="list-style-type: none"> a. These workers must have the right to one rest day for every six days worked and rest breaks during the workday the same as or more frequently than contracted workers. b. They must not form part of the farm's contracted workforce. c. They must not work at night. d. They must not handle or apply agrochemicals or be in areas where they are being applied. 	

Child access to education	RSPO	ISCC	SAN	ISPO
Main Provisions			<p>e. They must not carry heavy loads nor do work that requires physical exertion unsuitable for their age.</p> <p>f. They must not work on steep slopes (more than 50% incline) or in high places (ladders, trees, roofs, towers or similar places).</p> <p>g. They must not operate or be near heavy machinery. h. They must not do any type of work that may affect their health or safety.</p> <p>i. They must get periodical training for the work they do.</p> <p>j. They must be under the supervision of a responsible adult in order to guarantee that they understand how to do their work safely.</p> <p>k. Transportation must be provided to and from home if workers have to travel in the dark or in conditions that put their personal safety at risk.</p>	

K. Discrimination

All standards have non-discrimination/equal opportunity criterion. RSPO and ISCC make further provisions for making the policy publicly available to affected/relevant parties.

All four standards have mandatory criteria prohibiting discrimination (Table S14). Each standard lists a different set of grounds that could potentially serve as basis for discrimination, including: race and religion (the only two mentioned by all four standards), caste, social class, nation of origin, disability, sexual orientation, union membership, political affiliation, age, gender, color, civil status, or ethnic group. RSPO and ISCC require an equal opportunity policy that is made publicly available to relevant/affected groups. ISPO also requires such a policy but does not mention making it public. ISCC states that positive discrimination bias must also be avoided (e.g., showing preference to a specified group). RSPO allows for positive discrimination for local communities based on negotiated agreements. SAN states that equal pay, training, and promotion opportunities must be made available to all workers for the same type of work.



Table S14. Summary of how concerns over Discrimination are addressed in each standard

Discrimination	RSPO	ISCC	SAN	ISPO
Score	1	1	1	1
Main Provisions	<p>Criterion 6.8 - Any form of discrimination based on race, caste, national origin, religion, disability, gender, sexual orientation, union membership, political affiliation, or age, is prohibited.</p> <p>Indicator 6.8.1 - A publicly available equal opportunities policy including identification of relevant/affected groups in the local environment shall be documented.</p> <p>Indicator 6.8.2 - Evidence shall be provided that employees and groups including local communities, women, and migrant workers have not been discriminated against.</p> <p>Indicator 6.8.3 - It shall be demonstrated that recruitment selection, hiring and promotion are based on skills, capabilities, qualities, and medical fitness necessary for the jobs available.</p>	<p>Criterion 4.2 - Employment conditions comply with equality principles. (Major)</p> <p>Instruction 4.2 - Evidence is available that the farm provides equality of opportunity and treatment regardless of race, colour, sex, religion, political opinion, nationality, social origin, or other distinguishing characteristic (ILO conventions 100 and 111).</p> <p>Criterion 4.3 - There is no indication of discrimination (distinction, exclusion or preference) practiced that denies or impairs equality of opportunity, conditions or treatment based on individual characteristics and group membership or association (for example, on the basis of: race, caste, nationality, religion, disability, gender etc.). (Major)</p> <p>Instruction 4.3 - A publicly available equal opportunities policy including identification of relevant/affected groups in the local environment exists.</p>	<p>Criterion 5.2 (<i>Critical Criterion</i>) - The farm must not discriminate in its labor and hiring policies and procedures along the lines of race, color, gender, age, religion, social class, political tendencies, nationality, union membership, sexual orientation, civil status, or any other motive as indicated by applicable laws, ILO Conventions 100 and 111, and this standard. The farm must offer equal pay, training and promotion opportunities and benefits to all workers for the same type of work. The farm must not influence the political, religious, social, or cultural convictions of workers.</p>	<p>Criterion 4.3 - The use of child labor and worker discrimination (ethnic group, race, gender, religion): Plantation managers may not employ minors or discriminate.</p> <p>Indicator 4.3 - (1) Companies have a policy regarding worker age requirements that follows applicable legislation.</p> <p>Indicator 4.3 - (2) The company has a policy regarding equal treatment and opportunities for employment.</p> <p>Indicator 4.3 - (3) A list of employees is kept.</p> <p>Indicator 4.3 - (4) A mechanism for workers to report complaints and grievances is in place.</p>

Discrimination	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Guidance 6.8 - Examples of compliance can be appropriate documentation (e.g., job advertisements, job descriptions, appraisals, etc.), and/or information obtained via interviews with relevant stakeholders such as affected groups which may include women, local communities, foreign workers, and migrant workers, etc.</p> <p>Guidance 6.8 - Notwithstanding national legislation and regulation, medical conditions should not be used in a discriminatory way.</p> <p>Guidance 6.8 - The grievance procedures detailed in Criterion 6.3 apply. Positive discrimination to provide employment and benefits to specific communities is acceptable as part of negotiated agreements.</p>			<p>Indicator 4.3 - (5) Recorded complaints and grievances are kept on record.</p> <p>Guidance 4.3 - (a) SOP is in place for hiring new workers/employees.</p> <p>Guidance 4.3 - (b) No underage workers were found.</p> <p>Guidance 4.3 - (c) The company is responsible for maintaining the workers safety and sense of well being.</p>

L. Women

RSPO is the only criterion that specifically has a policy aimed at protecting women in the workplace (Table S15). It covers issues of sexual harassment as well as protection of reproductive rights. The standard has additional provisions to promote equality for women in land rights and smallholder schemes.

RSPO is by far the most outspoken on the issue of gender. It protects women in the workplace with a criterion stating that women may not be harassed or abused in the work place and that their reproductive rights are protected. Indicators of these include policies that are implemented and communicated to all levels of the workplace. Guidance includes educational programs, a gender committee, counseling for affected women, and policies to allow women to actively (time during work hours) and safely (without being exposed to agrochemicals) breastfeed for up to nine months. Guidance also recommends that childcare facilities are provided by employers and gender issues and access to land rights are considered when providing compensation and establishing smallholder schemes.

SAN also has an abuse criterion, but it is aimed at supervisor abuse and harassment and is not gender specific. In its requirements on housing facilities it requires gender specific showers be made available.

ISCC and ISPO do not have any criteria aimed specifically at supporting women. They both include gender in their categories for which discrimination is not allowed.

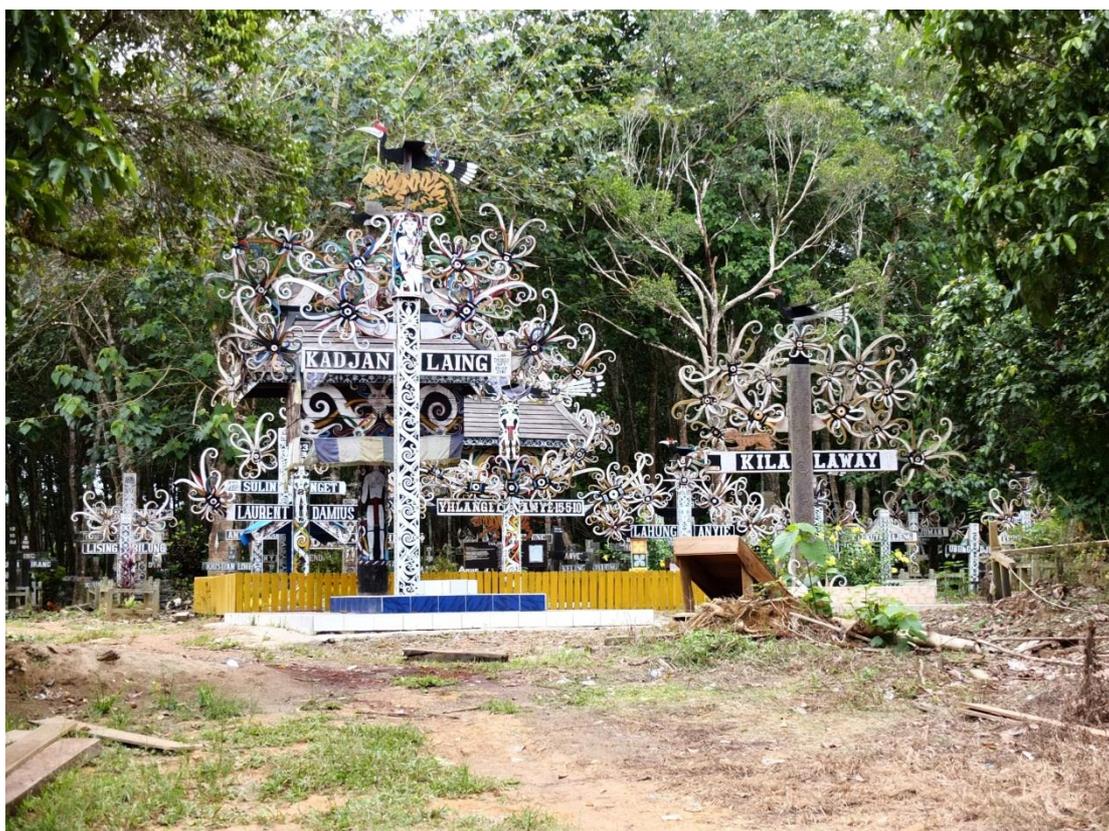


Table S15. Summary of how concerns over Women are addressed in each standard

Women	RSPO	ISCC	SAN	ISPO
Score	1	3	3	3
Main Provisions	<p>Criterion 6.9 - There is no harassment or abuse in the work place, and reproductive rights are protected.</p> <p>Indicator 6.9.1 - A policy to prevent sexual and all other forms of harassment and violence shall be implemented and communicated to all levels of the workforce.</p> <p>Indicator 6.9.2 - A policy to protect the reproductive rights of all, especially of women, shall be implemented and communicated to all levels of the workforce.</p> <p>Guidance for 6.9.1 and 6.9.2 - These policies should include education for women and awareness of the workforce. There should be programmes provided for particular issues faced by women, such as violence and sexual harassment in the workplace. A gender committee specifically to address areas of concern to women will be used to comply with this Criterion. This committee, which should include representatives from all areas of work, will consider matters such as: training on women's rights; counselling for women affected by violence; child care facilities to be provided by the growers and millers; women to be</p>	<p>Criterion 4.2 - Employment conditions comply with equality principles. (Major)</p> <p>Instruction 4.2 - Evidence is available that the farm provides equality of opportunity and treatment regardless of race, colour, sex, religion, political opinion, nationality, social origin, or other distinguishing characteristic (ILO conventions 100 and 111).</p> <p>Criterion 4.3 - There is no indication of discrimination (distinction, exclusion or preference) practiced that denies or impairs equality of opportunity, conditions or treatment based on individual characteristics and group membership or association (for example, on the basis of: race, caste, nationality, religion, disability, gender etc.). (Major)</p> <p>Instruction 4.3 - A publicly available equal opportunities policy including identification of relevant/affected groups in the local environment exists.</p>	<p>Criterion 5.2 (<i>Critical Criterion</i>) - The farm must not discriminate in its labor and hiring policies and procedures along the lines of race, color, gender, age, religion, social class, political tendencies, nationality, union membership, sexual orientation, civil status, or any other motive as indicated by applicable laws, ILO Conventions 100 and 111, and this standard. The farm must offer equal pay, training and promotion opportunities and benefits to all workers for the same type of work. The farm must not influence the political, religious, social or cultural convictions of workers.</p> <p>Criterion 5.11 - The farm and supervisors must not threaten, sexually abuse or harass, or verbally, physically or psychologically mistreat workers for any reason. The farm must encourage the respectful treatment of workers and have a formal mechanism to act upon workers' claims of mistreatment.</p> <p>Criterion 5.14 on housing requirements on the farm - (h) One shower per ten persons, separated by gender</p>	<p>Criterion 4.3 - The use of child labor and worker discrimination (ethnic group, race, gender, religion): Plantation managers may not employ minors of discriminate.</p> <p>Indicator 4.3 - (1) Companies have a policy regarding worker age requirements that follows applicable legislation.</p> <p>Indicator 4.3 - (2) The company has a policy regarding equal treatment and opportunities for employment.</p> <p>Indicator 4.3 - (3) A list of employees is kept.</p> <p>Indicator 4.3 - (4) A mechanism for workers to report complaints and grievances is in place.</p>

Women	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>allowed to breastfeed up to nine months before resuming chemical spraying or usage tasks; and women to be given specific break times to enable effective breastfeeding.</p> <p>Guidance for 6.9.2 - See Indicator 4.6.12.</p> <p>Indicator 4.6.12 - No work with pesticides shall be undertaken by pregnant or breastfeeding women.</p> <p>Indicator 6.9.3 - A specific grievance mechanism which respects anonymity and protects complainants where requested shall be established, implemented, and communicated to all levels of the workforce.</p> <p>Guidance 6.9 - There should be a clear policy developed in consultation with employees, contract workers and other relevant stakeholders, and the policy should be publicly available. Progress in implementing the policy should be regularly monitored, and the results of monitoring activities should be recorded.</p> <p>Notwithstanding national legislation and regulation, reproductive rights are respected.</p>			<p>Indicator 4.3 - (5) Recorded complaints and grievances are kept on record.</p> <p>Guidance 4.3 - (a) SOP for hiring new workers/employees is in place.</p> <p>Guidance 4.3 - (b) No underage workers were found.</p> <p>Guidance 4.3 - (c) The company is responsible for maintaining the workers safety and sense of well being.</p>

Women	RSPO	ISCC	SAN	ISPO
Main Provisions	<p>Indicator 6.5.2 - Labour laws, union agreements or direct contracts of employment detailing payments and conditions of employment (e.g., working hours, deductions, overtime, sickness, holiday entitlement, maternity leave, reasons for dismissal, period of notice, etc.) shall be available in the languages understood by the workers or explained carefully to them by a management official.</p> <p>Indicator 6.4.2 - A procedure for calculating and distributing fair compensation (monetary or otherwise) shall be established and implemented, monitored and evaluated in a participatory way, and corrective actions taken as a result of this evaluation. This procedure shall take into account: gender differences in the power to claim rights, ownership and access to land; differences of transmigrants and long-established communities; and differences in ethnic groups' proof of legal versus communal ownership of land.</p> <p>Guidance for 6.4.2 - Companies should make best efforts to ensure that equal opportunities have been provided to both female and male heads of households to hold land titles in smallholder schemes.</p>			

M. Indigenous People

ISPO and RSPO are the only standards that make explicit mention of indigenous people (Table S16). ISPO has provisions for specifically looking out for their welfare by providing employment and preserving local knowledge. RSPO is more focused on appropriate consultation and respecting rights of indigenous people (as well as other communities and stakeholders) during land acquisition efforts.

ISPO has a criterion that requires companies to improve the welfare of indigenous people, with indicators including a program designed and implemented to do such, including establishment of a program to preserve local knowledge. Guidance includes providing employment opportunities to indigenous people. ISPO also mentions indigenous people in the list of categories of people not to be discriminated against.

RSPO's provisions on indigenous people largely focus on land acquisition and ensuring that indigenous people are not taken advantage of in the process (e.g., FPIC procedures implemented, sacred sites are protected).

ISCC makes little reference to indigenous people; they are included only once when defining what level of human activity defines visible indications of human activity. Otherwise, there are a few mentions of traditional land rights and uses, in criteria ensuring appropriate measures are taken to acquire land rights and soil management.

SAN makes no specific reference to indigenous or tribal people, but does state a large collection of ILO conventions that were adapted to form the standard, including ILO Conventions 87 and 98 and Convention 169 concerning indigenous and tribal people. The standard instead uses the more all-encompassing term 'community'.

Table S16. Summary of how concerns Indigenous People are addressed in each standard

Living Indigenous People	RSPO	ISCC	SAN	ISPO
Score	1	3	3	1
Main Provisions	<p>Criterion 6.4 - Any negotiations concerning compensation for loss of legal, customary or user rights are dealt with through a documented system that enables indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions.</p> <p>Indicator 6.4.1 - A procedure for identifying legal, customary or user rights, and a procedure for identifying people entitled to compensation, shall be in place.</p> <p>Indicator 6.4.2 - A procedure for calculating and distributing fair compensation (monetary or otherwise) shall be established and implemented, monitored and evaluated in a participatory way, and corrective actions taken as a result of this evaluation. This procedure shall take into account: gender differences in the power to claim rights, ownership and access to land; differences of transmigrants and long-established communities; and differences in ethnic groups' proof of legal versus communal ownership of land.</p>	<p>Principle 5.1 - Biomass production shall take place in compliance with all applicable regional and national laws and shall follow relevant international treaties.</p> <p>Criterion 5.1 - The producer can proof that the land is used legitimately and that traditional land rights have been secured. (Major)</p> <p>Instruction 5.1 - Documents show legal ownership or lease, history of land tenure and the actual legal use of the land. The producer must identify existing land rights and does respect them (see Principle 1).</p> <p>Sub-criterion 2.4.5 - Use of agricultural by-products (Major)</p> <p>Instruction 2.4.5 - The use of agricultural by-products does not jeopardize the function of local uses of the byproducts, soil organic matter or soil nutrients balance.</p>	<p>Sources: Ideas for this document have been adapted from the following sources: International Labor Organization. Convention 138 and Recommendation 146; Convention 182; Conventions 100 and 111; Conventions 29 and 105; Conventions 87 and 98 and Convention 169 concerning Indigenous and Tribal Peoples in Independent Countries. Geneva, Switzerland. www.ilo.org International Union for Conservation of Nature</p>	<p>Criterion 5.2 - Empowerment of indigenous people: Plantation management takes a role in the welfare of indigenous people.</p> <p>Indicator 5.2 - (1) The company has a program to improve the welfare of indigenous people.</p> <p>Indicator 5.2 - (2) The company has a program to preserve local knowledge.</p> <p>Indicator 5.2 - (3) Proof of program implementation exists.</p> <p>Guidance 5.2 - (a) The company has a role in empowering indigenous people.</p> <p>Guidance 5.2 - (b) Employment opportunities are given to indigenous people.</p>

Living Indigenous People	RSPO	ISCC	SAN	ISPO
<p>Main Provisions</p>	<p>Indicator 6.4.3 - The process and outcome of any negotiated agreements and compensation claims shall be documented, with evidence of the participation of affected parties, and made publicly available.</p> <p>Guidance for 6.4.2 - Companies should make best efforts to ensure that equal opportunities have been provided to both female and male heads of households to hold land titles in smallholder schemes.</p> <p>Guidance 6.4 - This criterion should be considered in conjunction with Criteria 2.2 and 2.3, and the associated Guidance.</p> <p>Guidance 7.5 on new plantings - Where new plantings are considered to be acceptable, management plans and operations should maintain sacred sites. Agreements with indigenous peoples, local communities and other stakeholders should be made without coercion or other undue influence (see Guidance for Criterion 2.3).</p>	<p>Documentation must be available that the use of by-products does not occur at the expense of the soil nutrient balance, soil organic matter balance or important traditional uses (such as fodder, natural fertiliser, material, local fuel) unless documentation is available that similar or better alternatives are available and are applied.</p> <p>Instruction 1.1 in defining forest land and defining an absence of human activity - Activities of indigenous people or other humans managing the land in a traditional way do not count as clearly visible indications of human activity if they manage the forest on a subsistence level and their influence on the forested area is minimal (e.g., the collection of wood and non-timber products, the felling of a few trees as well as small-scale forest clearance according to traditional management systems).</p>		<p>Criterion 4.3 - The use of child labor and worker discrimination (ethnic group, race, gender, religion): Plantation managers may not employ minors of discriminate.</p> <p>Indicator 4.3 - (1) Companies have a policy regarding worker age requirements that follows applicable legislation.</p> <p>Indicator 4.3 - (2) The company has a policy regarding equal treatment and opportunities for employment.</p> <p>Indicator 4.3 - (3) A list of employees is kept.</p> <p>Indicator 4.3 - (4) A mechanism for workers to report complaints and grievances is in place.</p> <p>Indicator 4.3 - (5) Recorded complaints and grievances are kept on record.</p>

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Main Provisions	<p>Criterion 7.6 - Where it can be demonstrated that local peoples have legal, customary or user rights, they are compensated for any agreed land acquisitions and relinquishment of rights, subject to their free, prior and informed consent and negotiated agreements.</p> <p>Indicator 7.6.1 - Documented identification and assessment of demonstrable legal, customary and user rights shall be available.</p> <p>Guidance for 7.6.1 - This activity shall be integrated with the social and environmental impact assessment (SEIA) required by Criterion 7.1.</p> <p>Indicator 7.6.2 - A system for identifying people entitled to compensation shall be in place.</p> <p>Indicator 7.6.3 - A system for calculating and distributing fair compensation (monetary or otherwise) shall be in place.</p> <p>Indicator 7.6.4 - Communities that have lost access and rights to land for plantation expansion shall be given opportunities to benefit from plantation development.</p>			<p>Guidance 4.3 - (a) SOP is in place for hiring new workers/employees.</p> <p>Guidance 4.3 - (b) No underage workers were found.</p> <p>Guidance 4.3 - (c) The company is responsible for maintaining the workers safety and sense of well being.</p>

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Main Provisions	<p>Indicator 7.6.5 - The process and outcome of any compensation claims shall be documented and made publicly available.</p> <p>Guidance 7.6 - Refer to Criteria 2.2, 2.3 and 6.4 and associated Guidance.</p> <p>Guidance 7.6 - This requirement includes indigenous peoples (see Appendix 1). (Note Appendix 1 lists many ILO conventions regarding indigenous people.)</p>			

