# SAFA

## SUSTAINABILITY ASSESSMENT OF FOOD AND AGRICULTURE SYSTEMS

# INDICATORS

SAFA

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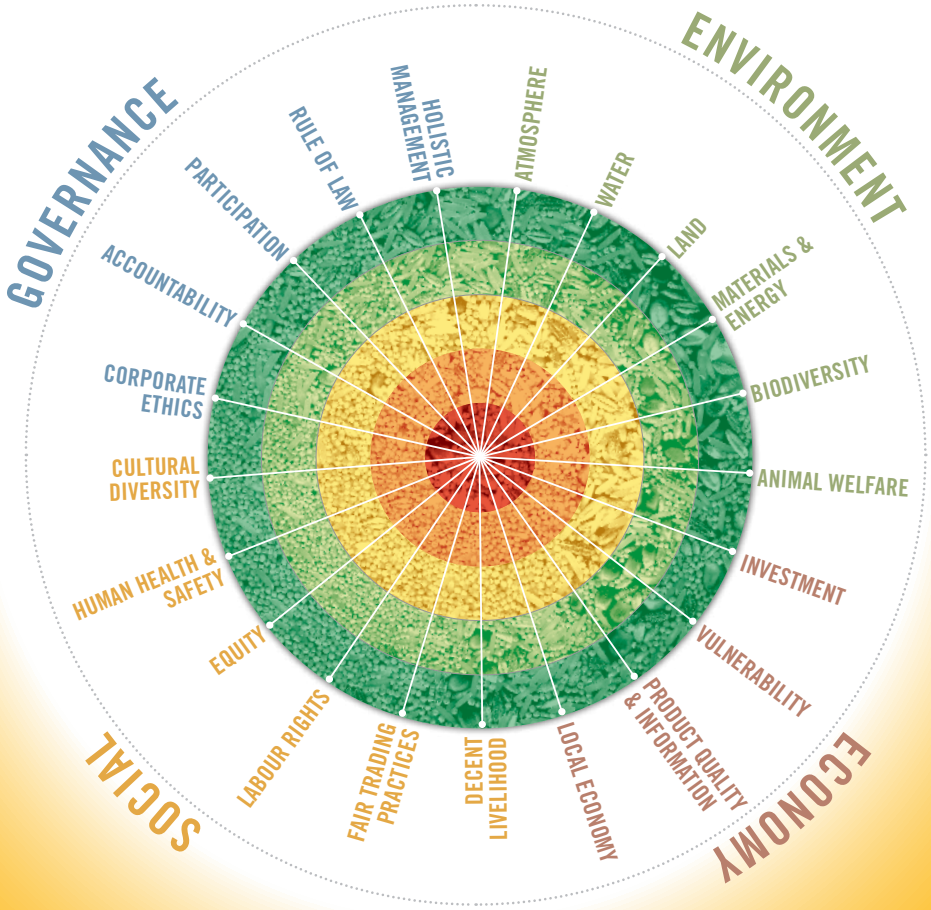
ENVIRONMENT
ATMOSPHERE
WATER
LAND
MATERIALS & ENERGY
BIODIVERSITY
ANIMAL WELFARE
ECONOMY
INVESTMENT
VULNERABILITY
PRODUCT QUALITY & INFORMATION
LOCAL ECONOMY
DECENT LIVELIHOOD
FAIR TRADING PRACTICES
SOCIAL
LABOUR RIGHTS
EQUITY
HUMAN HEALTH & SAFETY
CULTURAL DIVERSITY
CORPORATE ETHICS
GOVERNANCE
ACCOUNTABILITY
PARTICIPATION
RULE OF LAW
HOLISTIC MANAGEMENT

NATURAL RESOURCES MANAGEMENT AND ENVIRONMENT DEPARTMENT

# SAFA

## SUSTAINABILITY ASSESSMENT OF FOOD AND AGRICULTURE SYSTEMS

# INDICATORS

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS - ROME 2013

# ACKNOWLEDGEMENTS

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This document complements the SAFA Guidelines (version 3.0) by providing default indicators for SAFA self-assessments. These indicators form the basis of the SAFA Tool that FAO makes available to assist users implementing the Guidelines. These indicators result from the cumulative experience gained during the SAFA development process - from mapping existing sustainability indicators, through pilot testing, to expert views.

Special thanks go to the following contributors to this document: Marta Bentancur, Gabriella Bianchi, Cécile Brugère, Jan Grenz, Elisabeth Henderson, Doug Kneeland, Cristina Larrea, Sally Lee, Noémi Nemes, Michael Sligh and John Stansfield.

The SAFA Guidelines, SAFA Indicators and SAFA Tool are freely downloadable from: http://www.fao.org/nr/sustainability/sustainability-assessments-safa

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# PREAMBLE

The SAFA Guidelines provide the protocol for assessing sustainability along 21 themes and 58 sub-themes. In the SAFA framework, themes define universal sustainability goals. These themes are in turn broken down into sub-themes that define objectives which are specific to food and agriculture supply chains. An enterprise assessment measures performance against sub-themes' objectives. To do so, indicators are needed for measurements, in order to provide evidence as to whether or not a certain condition exists. Core performance indicators serve the purpose of providing standardized metrics to guide assessments on sustainability. SAFA provides such indicators for users who do not necessarily have the knowledge to develop indicators themselves without the risk of lowering the bar of the assessment.

The SAFA default indicators are applicable at the macro level – meaning to all enterprise sizes and types, and in all contexts. However, default indicators of such a universally applicable tool can only contain the frame for the rating scale. Within the SAFA Guidelines, default indicators have a rating definition of the top level of sustainability performance (dark green) and of unacceptable levels of performance (red); they do not contain full rating scales, as this is only possible at the contextualized level. Thus, the SAFA default indicator set is not sufficient per se, as customized indicators need to be developed by the assessor for determining performance in the intermediate performance levels (i.e. between dark green and red), depending on the context.

The 118 SAFA indicators were developed through practitioner and expert analysis of what constitutes the most critical individual components of each sub-theme. The overview Table below summarizes all SAFA default indicators per sub-theme and theme. The questions that all 118 default indicators seek to answer are listed in Appendix. Each of the SAFA default indicators is described through a methodological sheet, including: a description of the default indicator; relevance to the enterprise type and supply chain levels; unit

of measurement or metric; methodological description; rating best and unacceptable conditions; limitations of the indicator; and sources for additional information relevant to the indicator or contextualization.

No set of indicators can be definitive nor fitting all contexts, but must be adjusted over time through implementation and shared learning. The SAFA Tool seeks to facilitates the use of the SAFA indicators, as well as their further testing and development by food and agricultural enterprises. In striving to measure progress towards sustainable development, SAFA seeks to develop capacities. We look forward to including your experience in our database of information on the use and development of the SAFA Indicators.

# OVERVIEW TABLE OF SAFA DEFAULT INDICATORS PER SUB-THEMES AND THEMES

| Sustainability Dimension G: GOOD GOVERNANCE | | |
|---|---|---|
| Themes | Sub-Themes | Default Indicators |
| G1 Corporate Ethics | G1.1 Mission Statement | G 1.1.1 Mission Explicitness |
| | | G 1.1.2 Mission Driven |
| | G 1.2 Due Diligence | G 1.2.1 Due Diligence |
| G2 Accountability | G 2.1 Holistic Audits | G 2.1.1 Holistic Audits |
| | G 2.2 Responsibility | G 2.2.1 Responsibility |
| | G 2.3 Transparency | G 2.3.1 Transparency |
| G3 Participation | G 3.1 Stakeholder Dialogue | G 3.1.1 Stakeholder Identification |
| | | G 3.1.2 Stakeholder Engagement |
| | | G 3.1.3 Engagement Barriers |
| | | G 3.1.4 Effective Participation |
| | G 3.2 Grievance Procedures | G 3.2.1 Grievance Procedures |
| | G 3.3 Conflict Resolution | G 3.3.1 Conflict Resolution |
| G4 Rule of Law | G 4.1 Legitimacy | G 4.1.1 Legitimacy |
| | G 4.2 Remedy, Restoration and Prevention | G 4.2.1 Remedy, Restoration and Prevention |
| | G 4.3 Civic Responsibility | G 4.3.1 Civic Responsibility |
| | G 4.4 Resource Appropriation | G 4.4.1 Free, Prior and Informed Consent |
| | | G 4.4.2 Tenure rights |
| G5 Holistic Management | G 5.1 Sustainability Management Plan | G 5.1.1 Sustainability Management Plan |
| | G 5.2 Full-Cost Accounting | G 5.2.1 Full-Cost Accounting |

| Sustainability Dimension E: ENVIRONMENTAL INTEGRITY | | |
|---|---|---|
| Themes | Sub-Themes | Default Indicators |
| E1 Atmosphere | E 1.1 Greenhouse Gases | E 1.1.1 GHG Reduction Target |
| | | E 1.1.2 GHG Mitigation Practices |
| | | E 1.1.3 GHG Balance |
| | E 1.2 Air Quality | E 1.2.1 Air Pollution Reduction Target |
| | | E 1.2.2 Air Pollution Prevention Practices |
| | | E 1.2.3 Ambient Concentration of Air Pollutants |
| E2 Water | E 2.1 Water Withdrawal | E 2.1.1 Water Conservation Target |
| | | E 2.1.2 Water Conservation Practices |
| | | E 2.1.3 Ground and Surface Water Withdrawals |
| | E. 2.2 Water Quality | E 2.2.1 Clean Water Target |
| | | E 2.2.2 Water Pollution Prevention Practices |
| | | E 2.2.3 Concentration of Water Pollutants |
| | | E 2.2.4 Wastewater Quality |
| E3 Land | E 3.1 Soil Quality | E 3.1.1 Soil Improvement Practices |
| | | E 3.1.2 Soil Physical Structure |
| | | E 3.1.3 Soil Chemical Quality |
| | | E 3.1.4 Soil Biological Quality |
| | | E 3.1.5 Soil Organic Matter |
| | E 3.2 Land Degradation | E 3.2.1 Land Conservation and Rehabilitation Plan |
| | | E 3.2.2 Land Conservation and Rehabilitation Practices |
| | | E 3.2.3 Net Loss/Gain of Productive Land |
| E4 Biodiversity | E 4. 1 Ecosystem Diversity | E 4.1.1 Landscape/Marine Habitat Conservation Plan |
| | | E 4.1.2 Ecosystem Enhancing Practices |
| | | E 4.1.3 Structural Diversity of Ecosystems |
| | | E 4.1.4 Ecosystem Connectivity |
| | | E 4.1.5 Land Use and Land Cover Change |

| Sustainability Dimension E: ENVIRONMENTAL INTEGRITY | | |
|---|---|---|
| Themes | Sub-Themes | Default Indicators |
| E4 Biodiversity | E 4.2 Species Diversity | E 4.2.1 Species Conservation Target |
| | | E 4.2.2 Species Conservation Practices |
| | | E 4.2.3 Diversity and Abundance of Key Species |
| | | E 4.2.4 Diversity of Production |
| | E. 4.3 Genetic Diversity | E 4.3.1 Wild Genetic Diversity Enhancing Practices |
| | | E 4.3.2 Agro-biodiversity in-situ Conservation |
| | | E 4.3.3 Locally Adapted Varieties and Breeds |
| | | E 4.3.4 Genetic Diversity in Wild Species |
| | | E 4.3.5 Saving of Seeds and Breeds |
| E5 Materials and Energy | E 5.1 Material Use | E 5.1.1 Material Consumption Practices |
| | | E 5.1.2 Nutrient Balance |
| | | E 5.1.3 Renewable and Recycled Materials |
| | | E 5.1.4 Intensity of Material Use |
| | E 5.2 Energy Use | E 5.2.1 Renewable Energy Use Target |
| | | E 5.2.2 Energy Saving Practices |
| | | E 5.2.3 Energy Consumption |
| | | E 5.2.4 Renewable Energy |
| | E 5.3 Waste Reduction and Disposal | E 5.3.1 Waste Reduction Target |
| | | E 5.3.2 Waste Reduction Practices |
| | | E 5.3.3 Waste Disposal |
| | | E 5.3.4 Food Loss and Waste Reduction |
| E6 Animal Welfare | E 6.1 Animal Health | E 6.1.1 Animal Health Practices |
| | | E 6.1.2 Animal Health |
| | E 6.2 Freedom from Stress | E 6.2.1 Humane Animal Handling Practices |
| | | E 6.2.2 Appropriate Animal Husbandry |
| | | E 6.2.3 Freedom from Stress |

| Sustainability Dimension C: ECONOMIC RESILIENCE | | |
|---|---|---|
| Themes | Sub-Themes | Default Indicators |
| C1 Investment | C 1.1 Internal Investment | C 1.1.1 Internal Investment |
| | C 1.2 Community Investment | C 1.2.1 Community Investment |
| | C 1.3 Long Ranging Investment | C 1.3.1 Long Term Profitability |
| | | C 1.3.2 Business Plan |
| | C 1.4 Profitability | C 1.4.1 Net Income |
| | | C 1.4.2 Cost of Production |
| | | C 1.4.3 Price Determination |
| C2 Vulnerability | C 2.1 Stability of Production | C 2.1.1 Guarantee of Production Levels |
| | | C 2.1.2 Product Diversification |
| | C 2.2 Stability of Supply | C 2.2.1 Procurement Channels |
| | | C 2.2.2 Stability of Supplier Relationships |
| | | C 2.2.3 Dependence on the Leading supplier |
| | C 2.3 Stability of Market | C 2.3.1 Stability of Market |
| | C 2.4 Liquidity | C 2.4.1 Net Cash Flow |
| | | C 2.4.2 Safety Nets |
| | C 2.5 Risk Management | C 2.5.1 Risk Management |
| C3 Product Quality and Information | C 3.1 Food Safety | C 3.1.1 Control Measures |
| | | C 3.1.2 Hazardous Pesticides |
| | | C 3.1.3 Food Contamination |
| | C 3.2 Food Quality | C 3.2.1 Food Quality |
| | C 3.3 Product Information | C 3.3.1 Product Labelling |
| | | C 3.3.2 Traceability System |
| | | C 3.3.3 Certified Production |
| C4 Local Economy | C 4.1 Value Creation | C 4.1.1 Regional Workforce |
| | | C 4.1.2 Fiscal Commitment |
| | C 4.2 Local Procurement | C 4.2.1 Local Procurement |

| Sustainability Dimension S: SOCIAL WELL-BEING | | |
|---|---|---|
| Themes | Sub-Themes | Default Indicators |
| S1 Decent Livelihood | S 1.1 Quality of Life | S 1.1.1 Right to Quality of Life |
| | | S 1.1.2 Wage Level |
| | S 1.2 Capacity Development | S 1.2.1 Capacity Development |
| | S 1.3 Fair Access to Means of Production | S 1.3.1 Fair Access to Means of Production |
| S2 Fair Trading Practices | S 2.1 Responsible Buyers | S 2.1.1 Fair Pricing and Transparent Contracts |
| | S 2.2 Rights of Suppliers | S 2.2.1 Rights of Suppliers |
| S3 Labour Rights | S 3.1 Employment Relations | S 3.1.1 Employment Relations |
| | S 3.2 Forced Labour | S 3.2.1 Forced Labour |
| | S 3.3 Child Labour | S 3.3.1 Child Labour |
| | S 3.4 Freedom of Association and Right to Bargaining | S 3.4.1 Freedom of Association and Right to Bargaining |
| S4 Equity | S 4.1 Non Discrimination | S 4.1.1 Non Discrimination |
| | S 4.2 Gender Equality | S 4.2.1 Gender Equality |
| | S 4.3 Support to Vulnerable People | S 4.3.1 Support to Vulnerable People |
| S5 Human Safety and Health | S 5.1 Workplace Safety and Health Provisions | S 5.1.1 Safety and Health Trainings |
| | | S 5.1.2 Safety of Workplace, Operations and Facilities |
| | | S 5.1.3 Health Coverage and Access to Medical care |
| | S 5.2 Public Health | S 5.2.1 Public Health |
| S6 Cultural Diversity | S 6.1 Indigenous Knowledge | S 6.1.1 Indigenous Knowledge |
| | S 6.2 Food Sovereignty | S 6.2.1 Food Sovereignty |

METHODOLOGICAL SHEETS

# GOOD GOVERNANCE INDICATORS

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# MISSION EXPLICITNESS (G 1.1.1)

GOVERNANCE
CORPORATE ETHICS (G 1)
MISSION STATEMENT (G 1.1)

## Description

Mission Explicitness is the highest level governance statement and should proclaim a commitment to sustainability. To achieve this, the enterprise will have made its commitment to all areas of sustainability clear to the public, to all personnel and other stakeholders through publishing a mission statement or other similar declaration (such as a code of conduct or vision statement) that is binding for management and employees. The mission statement and attendant policies or codes of conduct should be living documents which establish a leadership direction and provide guidance and a benchmark against which all employees can deliver. It is also a standard which publicly identifies the values that all stakeholders can expect to see practiced by the enterprise.

## Relevance to enterprise type and supply chain levels

Clarity about commitment to sustainability is central to sustainable practice in all enterprises. It is the starting point or initial statement of values and beliefs in strategic management.

## Unit of measurement

This indicator is measured by sampling of personnel from all levels of the enterprise and establishing a percentage of compliance. Compliance is more than being able to recite a mission statement but includes being able to explain it and relate it to the work the employee, or members of a group of small-scale producers.

## How to measure

The form this will take will vary according to scale, education and culture. While in formal enterprises it will have a well-crafted mission statement, small farmers groups or small-scale fishers might equally express their commitment through a song or traditional ritual.

Mission statements will be more explicit in enterprises with greater communications capacity and brand awareness. Because sustainability concepts are often deeply embedded in traditional cultures, many traditional languages have rich idiom for sustainability-focused mission statements. Frequently, quite complex sustainability concepts are held in short phrases and in some cases single words.

The ability to articulate and demonstrate sustainability values in environmental, economic, social and governance sense is the first step in sustainable practice. It is expected that all enterprises aspiring to sustainable status should be able to achieve this, whereas some other indicators require a level of literacy and governance capacity which will be more difficult for smaller, remote and emerging enterprises.

- Identify through inquiry the enterprise's mission. The mission statement should state in credible, clear and authentic words, how the enterprise intends to contribute to all four dimensions of sustainable development.
- Conduct a review of key enterprise documents and informal practices. At a minimum, the mission statement should be present in the enterprises' main planning and reporting documents.
- Interview a sample of personnel from all levels of the enterprise in order to establish the percentage of staff or people who can identify and explain the enterprise's mission.

## Rating

**Dark Green score:**

100% of employees, or members of a group of small-scale producers, are able to explain the enterprise's mission and identify how it influences the work which they do.

**Red score:**

- The enterprise or group of producers has no articulated mission; OR
- The mission of the enterprise or group of producers does not address sustainability; OR
- The key planning and reporting documents of the enterprise, or undocumented rituals of the group of producers, have no evidence of sustainability principles.

## Limitations

Having a mission which includes sustainability principles is not evidence of sustainable practice. Mission statements can be used to project an image of sustainable practice beyond the actual effort of the enterprise. Some traditional farming practices pay great respect to the natural environment and are conducted in communal societies where all food is shared, yet these groups may not necessarily articulate the sustainability values in relation to the enterprise itself particularly where the values are part of a broader spiritual or world view which is not internally contested. In such situations, a degree of cultural fluency may be necessary to understand how the indicator is met.

## Sources of information

**Morphew, C.C. and Hartley, M.** 2006. Mission Statements: a Thematic Analysis of Rhetoric across International Type. *Journal of Higher Education*, 77 (3): 456-471.

**Starr, K.** 2012. The Eight-Word Mission Statement. *Stanford Social Innovation Journal.*

**Swales, J.M. and Rogers, P.S.** 1995. Discourse and the Projection of Corporate Culture: the Mission Statement. *Discourse Society*, 6(2): 223-242.

INDICATOR NAME **MISSION DRIVEN (G 1.1.2)**
DIMENSION **GOVERNANCE**
THEME **CORPORATE ETHICS (G 1)**
SUB-THEME **MISSION STATEMENT (G 1.1)**

### Description

To be Mission Driven, the enterprise must prove the mission is evident in enterprise codes and policies, and the governance body can demonstrate the influence of the mission in informing and developing policy and practice.

### Relevance to enterprise type and supply chain levels

Clarity about commitment to sustainability is central to sustainable practice in all enterprises.

### Unit of measurement

Because the evidence of compliance is the governing body demonstrating how mission has influenced decision-making, the extent of this will be necessarily qualitative.

### How to measure

It is the starting point or initial statement of values and beliefs in strategic management. The degree to which a mission statement is central to the sustainability effort will vary according to organizational scale and context, as well as the degree of governance capacity. All complying enterprises should be able to show how the value of sustainable development influences their decision making. But the most sophisticated will be able to show the sustainability values evident in its environmental, economic, social and governance performance. To this extent, an interview sample of the governance body and senior management can identify the influence of the sustainability commitment in key decisions and processes.

### Rating

**Dark Green score:**
100% of governance body and senior management can identify the influence of the mission sustainability commitments in the key decisions and processes of the enterprise.

**Red score:**
» The governance body and senior management are unable to identify any examples of mission driven decision making; OR
» Significant decisions of the enterprise and its practices are contrary to mission.

### Limitations

The indicator is difficult to reduce to an accurate metric. However, it is a useful formative rather than summative assessment. The act of inquiry builds the desired sustainable governance practice. Care will need to be taken that the indicator assessment is proportional to the scale of the enterprise, so as to avoid it becoming unnecessarily burdensome and compromising

the ability to achieve mission. In smaller enterprises with limited governance resources, a thorough understanding of cultural context will be important in achieving a fair assessment. For example, in post-colonial societies it is not uncommon for traditional values of sustainability to have been suppressed to the extent that workers experience one culture in the community and another alien culture in the workplace. In such cases, real skill is required to integrate the best of traditional sustainability lore and practice into the work environment.

### Sources of information

**Hulmes, D**. 2013. An Autoethnographic Exploration of Norway: Nature and Culture. In *The Journal of Sustainability Education.*

**Stanborough, M.** 2011. The Link between: Culture and Sustainability in Municipal Planning. *Culture and Local Governance*, 3(1) 95-100.

**Sibilia, J.** 2012. In Defense of Mission-Driven Businesses. In *Sustainable Industries.*

INDICATOR NAME **DUE DILIGENCE (G 1.2.1)**
DIMENSION **GOVERNANCE**
THEME **CORPORATE ETHICS (G 1)**
SUB-THEME **DUE DILIGENCE (G 1.2)**

## Description

Due Diligence refers to when an enterprise is pro-active in considering its external impacts before making decisions that have long-term impacts for any pillar - environmental, economic, social or governance - of sustainability. This is accomplished by the enterprise following appropriate procedures such as risk assessments, and others that ensure that stakeholders are informed, engaged and respected.

## Relevance to enterprise type and supply chain levels

Clarity about commitment to sustainability is central to sustainable practice in all enterprises of all sizes and levels of the supply chain. In the post-harvest chain, there has been a huge improvement in respect to due diligence practices which account for the spread of business-to-business protocols in the producer and processing/storage enterprises, including the inclusion of input procurement (for equipment, packaging materials and transportation).

## Unit of measurement

This indicator does not lend itself to metrics but these might develop in an enterprise specific or even sector/size specific way over time. Specific governance evidence of risk analysis and consideration, typically through the use of risk management matrix or other risk tool.

## How to measure

- A review of enterprise records finds evidence of a risk management tool in place and regularly updated.
- An interview sample of the governance body and senior management can identify evidence of pro-active consideration of external impacts before implementation of policies and processes.
- The enterprise regularly assesses the views and priorities of its stakeholders, especially customers, to ensure it is proactively aware of preferences and potential risks.
- Evidence of appropriate food and workplace safety protocols in use and able to be identified by staff.
- Employees/producers are aware of, and systematically implement, food safety procedures to minimize risks of food spoilage and contamination.

## Rating

**Dark Green score:**
The enterprise has accomplished all components of appropriate risk assessment, which includes internal and external risks, as well as external impacts on others in all areas of sustainability. Also, the enterprise has not experienced any major losses or caused major negative impacts as a result of unmitigated risks.

**Red score:**

- The enterprise has no evidence of proactive risk management; OR
- The enterprise has precedents of unsustainable good and services procurement or of acceptance of funds from unsustainable enterprises; OR
- The enterprise has records of regular losses, as a result of unmitigated risks; OR
- The stakeholders of the enterprise (e.g. staff, local community) are regularly exposed to negative impacts, as a result of enterprise operations.

## Limitations

The indicator will be more useful in larger formal enterprises and should be more strongly applied in enterprises with greater capacity for good governance. Even if there may not be a risk management service or manager in place, commitment and third party audits in production and processing will surely not be limitant for the indicator measurement

## Sources of information

**Bondad-Reantaso, M.G.; Arthur, J.R.; Subasinghe, R.P. (eds)**. 2008. Understanding and Applying Risk Analysis in Aquaculture. *FAO Fisheries and Aquaculture Technical Paper*. No. 519. Rome, FAO.

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**Hoffman, S. and Harder, W.** 2010. Food Safety and Risk Governance in Globalized Markets. *Resources for the Future*, DP 09-44.

**Rosenstock, L., Cullen, M.R. and Fingerhut, M.** 2005. Advancing Worker Health and Safety in the Developing World. *J. Occup. Enviro.n Med*, 47(2):132-6. USA.

**Sumner, J., Ross, T. and Ababouch, L.** 2004. Application of Risk Assessment in the Fish Industry. *FAO Fisheries Technical Paper*, No. 442. Rome.

INDICATOR NAME **HOLISTIC AUDITS (G 2.1.1)**
DIMENSION **GOVERNANCE**
THEME **ACCOUNTABILITY (G 2 )**
SUB-THEME **HOLISTIC AUDITS (G 2.1)**

## Description

Holistic Audits apply when all areas of sustainability in the SAFA dimensions for environment, social, economic and governance that pertain to the enterprise are monitored internally in an appropriate manner, and wherever possible, are reviewed according to recognized sustainability reporting systems.

## Relevance to enterprise type and supply chain levels

This indicator is relevant to all enterprises of all types and sizes, but the practice and means by which it is accomplished will vary depending on size of the operation. Smaller enterprises and those early in a sustainability journey may find less prescriptive approaches. Several business-to-business protocols include social, environmental and some components of governance themes to be applied in the procurement chain, from the growers, processors and marketers.

## Unit of measurement

This indicator does not lend itself to metrics but could consider the percentage of SAFA dimensions audited, using an internationally recognized tool or a mechanism recognized by group members.

## How to measure

Genuine sustainability auditing is evidence of sustainability values being integrated into organizational governance and culture. Large enterprises could be expected to have institutionalized sustainability reporting and auditing. It would be expected that these would have at least one recognized sustainability audit tool and all of the dimensions of SAFA are reported on and audited.

Using recognized tools such as the Global Reporting Initiative (GRI) provides the opportunity for real improvements through benchmarking. Smaller enterprises and those early in a sustainability journey may find less prescriptive approaches, such as Social Auditing more accessible, as it is able to make efficient use of all of an organization existing data systems. The highly customizable approach has proven effective in diverse cultures where evidence can be produced using a wider range of mediums than only paper or electronic record. For instance, a Melanesian women's food cooperative did not have a formal mission statement and policies but had a song about their values which they performed and reflected on regularly, particularly before difficult decisions were being made.

As with all systems, care needs to be taken to ensure the auditing system is relevant to the enterprise, consistent with its culture and not unduly burdensome, so as to detract from the sustainability practice or reduce the ability of the enterprise to regularly use the tool.

Evidence of a recognized sustainability audit tool being operated by the enterprise, with the results of audit being regularly reviewed by board and management, may include but is not limited to:

» Reports to the governance body from external or internal auditors.
» Reports by the governance body of the audit in key organizational documents, such as annual plans and annual reports.
» Processes for gathering data for audited sustainability reporting.

## Rating

**Dark Green score:**
The enterprise has a regular sustainability audit using a recognized tool and evidence that this is reviewed by governance body and peer reviewed. If the enterprise is a small-scale operation, it has used a systematic approach of their own, or with the assistance of an outside partner, to regularly review their sustainability performance.

**Red score:**
» The enterprise has no evidence of sustainability auditing, either formal or informal; OR
» The enterprise has sustainability audits which are found to be falsified, or consistently fail to address known deficiencies.

## Limitations

The indicator will be more useful in larger formal enterprises and should be more strongly applied in enterprises with greater capacity for good governance.

## Sources of information

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**Global Reporting Initiative**. Accessed on Sept. 2013.

**GLOBALG.A.P**. Option 2 Group of Growers. Accessed on Sept. 2013.

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**SEDEX**. Empowering Responsible Supply Chain.

**World Bank.** Social Audit. Social Development Department. Accessed on Sept. 2013.

INDICATOR NAME **RESPONSIBILITY (G 2.2.1)**
DIMENSION **GOVERNANCE**
THEME **ACCOUNTABILITY (G 2 )**
SUB-THEME **RESPONSIBILITY (G 2.2)**

## Description

The enterprise's governance body takes responsibility for the enterprise's performance in each pillar of the SAFA. Where the enterprise's performance is found wanting, the governance body takes responsibility for ensuring performance is improved and engages stakeholders in the monitoring of performance improvement plans.

## Relevance to enterprise type and supply chain levels

Primarily relevant to large scale enterprises of any position in the supply chain. Small-scale producers may achieve this indicator through informal or highly customized means.

## Unit of measurement

This indicator does not lend itself to metrics but could consider:

- How regularly performance is assessed.
- How the enterprise's governance body holds management accountable for improving the impact of the enterprise; part of the performance agreement between the board and CEO forms a standard part of senior executive contract.
- How the enterprise deals with conflict with its stakeholders; best practice is taking responsibility for addressing issues and repairing relationships.

## How to measure

Responsibility for impact is inextricably linked to sustainable performance. Implicit in this, is the understanding of governance-driven continuous improvement. Improvements in the sustainable practice of organizations are achieved through cycles of continuous action and reflection. Larger organizations will have regular and formal processes for measuring performance against mission. Smaller organizations and those recently on a journey of sustainability may struggle to devote resources to this process and it will be important to support this with lighter and culturally relevant mechanisms. Often, a first step will be simply to record the discussions that are held and to show that the enterprise takes responsibility for its impact.

A review of enterprise records provides evidence that responsibility for sustainable performance is taken and prioritized by the governance body. This includes performance being measured against mission and the views of relevant stakeholders contributing to this assessment. Evidence may include but is not limited to:

- Reports to governance body from management comparing organizational performance and impact to the mission and sustainability goals.
- Reports by governance body, or other evidence of consideration, of organizational impact and performance against mission.

» Records of stakeholders' consultation employed, including which stakeholders were and were not included in the processes and any measures employed to ensure the views of vulnerable stakeholders were considered.
» Where there has been conflict with stakeholders, the governance body has immediately taken responsibility to investigate, remedy and repair and has involved affected stakeholders directly in the process and assessment of success.

### Rating

**Dark Green score:**
The enterprise can clearly show that its governance body takes responsibility for its impact and has regular reviews of organizational impact and performance against mission and sustainability goals and appropriately engages all relevant stakeholders in the process.

**Red score:**
» The enterprise has no evidence of having compared performance to mission; OR
» The enterprise has consistently excluded the views of relevant stakeholders; OR
» The enterprise has not taken early responsibility for its impact in any dispute with stakeholders, or is in clear breach of the pillars of sustainability.

### Limitations

The indicator is very similar to G1.1.2 "Mission driven" and this may confuse. However, whereas G1.1.2 is measuring the degree to which the mission is embedded in organizational policy and processes, this indicator is more specifically looking for evidence that responsibility for impact and performance is being taken by the enterprise's governance body and that impact and performance are being compared to and therefore, able to be expressed in terms of mission. Organizations with more sophisticated governance will find this easier to understand and institute than smaller and emerging organizations; however, some small traditional enterprises have a very sound understanding of chiefly responsibility which may translate for this indicator.

### Sources of information

**Bender, R.** 2013. *Reporting Sustainability*. Cranfield University.

**European Commission.** 2011. *A Renewed EU Strategy 2011-14 for Corporate Social Responsibility.*

**Global Reporting Initiative**. 2011. *Sustainability Reporting Guideline*. Version 3.1.

**Macedo, I.M. and Pinho, J.C**. 2010. Exploring the Link between Mission Statement and Organizational Performance in Non-Profit Health Care Organizations. *International Marketing Trends Conference.*

**Transition Support**. The Mission Management Process. Accessed on Sept. 2013.

INDICATOR NAME **TRANSPARENCY (G 2.3.1)**
DIMENSION **GOVERNANCE**
THEME **ACCOUNTABILITY (G 2 )**
SUB-THEME **TRANSPARENCY (G 2.3)**

## Description

In sustainability circles there is a saying "a little sunlight is a great disinfectant". This refers to how sustainability systems and initiatives run much better when organizations operate in a transparent manner. Real transparency involves understanding the information needs of stakeholders and making accurate, timely and relevant information available in an accessible way.

## Relevance to enterprise type and supply chain levels

This will be more relevant to larger enterprises with well-developed governance capacity. Further indicators which are more formative than summative need to be developed for smaller, less formal and emerging organizations. These may need to include guidelines and examples. It will also be important to craft these with a good cultural fit. Transparency is not a universally held value across all cultures and some traditional societies have very prescriptive lore on information sharing.

## Unit of measurement

This indicator is essentially qualitative and there is little to be gained from establishing a metric which might in any event distract from what is important to achieve.

## How to measure

- The transparency policy is identified from a review of the enterprise's policies and procedures.
- The enterprise can show how the policy is used and cite examples from its published works of information being available to stakeholders.
- Enterprise documents and webpages have clear pathways for accessing information.
- The enterprise can explain how the information needs of stakeholders are assessed and met.

## Rating

**Dark Green score:**
The enterprise has explicit and open policies to deal with requests for information. It anticipates the information stakeholders will need and makes this available in a timely and accurate manner via channels which are appropriate and accessible to its stakeholders. The enterprise regularly assesses its performance and invites stakeholders to rate the performance and comment on how this could be improved. It can show a consistent history of improvement in its transparency.

**Red score:**
The enterprise regularly and deliberately withholds information from key stakeholders, or provides information that is not fully accurate.

## Limitations

It is very difficult to establish a standard in this area. Transparency about economic, environmental and social impacts may be a very interesting component to promote stakeholder relations but this may be aspirational. Small and medium size enterprises do not always see the appropriateness to publicly give access to information from the company to certain stakeholders, since this culture has not been developed in many countries.

## Sources of information

**Lauby S.** 2009. Five Ways to Make your Business more Transparent. *Mashable*.

**OECD**. Why a Global Standard for a Stronger, Cleaner, Fairer Economy? Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# STAKEHOLDER IDENTIFICATION (G 3.1.1)

GOVERNANCE
PARTICIPATION (G 3 )
STAKEHOLDER DIALOGUE (G 3.1)

## Description

The enterprise pro-actively identifies stakeholders, which include all those affected by the activities of the enterprise, including any stakeholders unable to claim their rights. Satisfactory stakeholder identification is a precursor to stakeholder engagement and participation.

## Relevance to enterprise type and supply chain levels

All enterprises of all types and sizes should be able to identify their stakeholders and report on how these are engaged. However, the mechanism used to accomplish this will vary, based on size.

## Unit of measurement

This indicator measures the percentage of stakeholders identified, versus the total number of stakeholders, as well as the percentage of identified stakeholders unable to claim their rights.

## How to measure

Larger enterprises with well-developed governance processes will have cyclical, as well as issue specific engagement and will keep and be able to evidence records of these. In smaller or less formal enterprises, this may be emergent. However, most organizations will have stakeholders and with assistance, should be able to identify these and articulate how they are identified. The indicator may be more thoroughly understood at the marketing end of the supply chain because marketing organizations typically rely more heavily on stakeholder engagement to inform organizational direction.

» The enterprise can describe the processes for identifying each stakeholder group, including how spokespersons are identified and endorsed, and provide evidence of this, including minutes, resolutions, invitations and photographs.
» The enterprise supplies a list of stakeholders which identifies those for which satisfactory engagement was achieved, as well as those vulnerable stakeholders unable to claim their rights.
» A sample of stakeholders confirms the enterprise's assessment.

## Rating

**Dark Green score:**
The enterprise has a clear commitment to stakeholder engagement and participation. It is able to describe how it identifies stakeholders and how spokespersons are identified and endorsed. It is able to list all stakeholders and identify those who are vulnerable or ordinarily unable to claim their rights.

**Red score:**

» The enterprise is unable or unwilling to describe the process used for identifying stakeholders or the process of identification excludes the most vulnerable and those unable to claim their rights; OR

» Less than 30% of stakeholders, or less than 50% of stakeholders who are among the most vulnerable and those unable to claim their rights, have been identified.

## Limitations

This is a relatively straightforward indicator which might be formative in the early stages of assessment with smaller and less formal organizations. The metrics in the measurement might be arguable, as it is the process of identification which will determine how many are identified.

## Sources of information

**Bryson, J.M.** 2004. What to Do when Stakeholders Matter. Stakeholder Identification and Analysis Techniques. *Public Management Review,* 6(1): 21-53.

**Rabinowitz, P.** 2013. Identifying and Analyzing Stakeholders and their Interests. *The Community Tool Box.* University of Kansas.

**The World Bank Group.** 2001. Participation Analysis. Getting Started: Identifying Stakeholders.Version 04-16.02.

**Thompson, R.** Stakeholders Analysis. Winning Support for your Projects. *Mindtools.* Accessed on Sept. 2013.

INDICATOR NAME **STAKEHOLDER ENGAGEMENT (G 3.1.2)**
DIMENSION **GOVERNANCE**
THEME **PARTICIPATION (G 3 )**
SUB-THEME **STAKEHOLDER DIALOGUE (G 3.1)**

## Description

The enterprise is able to effectively engage with stakeholders. Excellent performance in this indicator will be evidenced by engagement activities customized for stakeholder type, resulting in comprehensive and mutually satisfactory engagement which is sustained over time. Engagement may take many forms and increasingly, might embrace new technologies and social media, as well as more traditional surveys, meetings, interviews and focus groups.

## Relevance to enterprise type and supply chain levels

All enterprises should be able to identify their stakeholders and report on how these are engaged with.

## Unit of measurement

This indicator measures the number of stakeholders identified versus the number engaged, the number of engaged stakeholders unable to claim their rights, and the diversity of approaches used to engage with stakeholders.

## How to measure

Larger enterprises with well-developed governance processes will have cyclical, as well as issue specific engagement and will keep and be able to evidence records of these. In smaller or less formal enterprises, this may be emergent. However, most organizations will have stakeholders and with assistance should be able to identify these and articulate how they are engaged.

The indicator may be more thoroughly understood at the marketing end of the supply chain because marketing organizations typically rely more heavily on stakeholder engagement to inform organizational direction.

Diversity of approaches for engagement will be evidence of a more sophisticated approach and mature enterprises will be able to show how different approaches have been used to increase participation from specific stakeholders.

- Describe the enterprise processes for engaging each stakeholder group and provide evidence of this, including minutes, resolutions, invitations, photographs.
- List the enterprise supplies of stakeholders which identifies those for which satisfactory engagement was achieved, including vulnerable stakeholders and those unable to claim their rights.
- Identify the enterprise diversity of approaches and explain how these contributed to effective engagement.
- A sample of stakeholders confirms the enterprise's assessment.

## Rating

**Dark Green score:**
The enterprise has a clear commitment to stakeholder engagement and participation when it has achieved satisfactory engagement with 80% of identified stakeholders, including all vulnerable stakeholders and those unable to claim their rights.

**Red score:**

» The enterprise is unable or unwilling to describe the process used for engaging with stakeholders or the process of engagement or excludes the most vulnerable and those unable to claim their rights; OR

» Less than 30% of stakeholders, or less than 50% of stakeholders who are among the most vulnerable and those unable to claim their rights, have been engaged.

## Limitations

This is a relatively straightforward indicator which might be formative in the early stages of assessment with smaller and less formal organizations. The metrics in the measurement might be arguable.

## Sources of information

**Business Case Studies LLP.** Engaging Stakeholders in a Business.. *The Times 100*, Edition 10. Accessed on Sept. 2013.

**Fraser, E.D.G., Dougill, A.J., Mabee, W. E., Reed, M. and McAlpine, P.** 2006. Bottom Up and Top Down: Analysis of Participatory Processes for Sustainability Indicator Identification as a Pathway to Community Empowerment and Sustainable Environmental Management. *Journal of Environmental Management*, 78: 114-127.

**Knight P.T.** 2013. Corporate Sustainability in Context. *Ethical Corporation magazine*. Context.

**Renaut J.P.** 2007. Practices and Principles for Successful Stakeholder Engagement. *SustainAbility.*

INDICATOR NAME **ENGAGEMENT BARRIERS (G 3.1.3)**
DIMENSION **GOVERNANCE**
THEME **PARTICIPATION (G 3 )**
SUB-THEME **STAKEHOLDER DIALOGUE (G 3.1)**

## Description

The enterprise has an understanding of how asymmetries of power can prevent the engagement of vulnerable stakeholders. It has a commitment to identifying barriers to engagement for all stakeholder groups and working with those groups to overcome barriers. Barriers can include but are not limited to knowledge/information, financial, physical, geographic, cultural, religious, linguistic/communication and status barrier. Engagement may take many forms and increasingly might embrace new technologies and social media, as well as more traditional surveys, meetings, interviews and focus groups.

## Relevance to enterprise type and supply chain levels

This indicator is primarily relevant for larger scale operations in any level of the supply chain. However, as an exercise, this may be helpful for some small-scale producers and in some cases, the assessor may determine that the circumstances of the small operation make this indicator relevant; for example, in the case of a small wild rice farmer using indigenous knowledge and materials from a local community in their branding.

## Unit of measurement

This indicator measures engagement barriers versus strategies to the identified and employed barriers.

## How to measure

An enterprise takes an ecological approach to see value in engagement with all stakeholders and understands the barriers to their participation. Complying enterprises will have met the criteria in indicators G3.1.1 and G3.1.2. These are likely to be the larger organizations with significant governance capacity. However, the exercise of the indicator may be formative for smaller and less sophisticated enterprises.

» Identify the enterprise barriers to engagement for each stakeholder group; in larger enterprises, these might be detailed in the stakeholders' register while in smaller enterprises, the identification will be less formal.
» List the enterprise strategies to overcome barriers to engagement and where these have been employed.
» A sample of stakeholders confirms the enterprise's assessment.

## Rating

**Dark Green score:**
The enterprise has a clear commitment to stakeholder engagement and participation when it is able to identify potential barriers to engagement for stakeholders, has developed strategies to overcome these barriers, and has evidence of this being successfully employed in 80% of cases. It has process improvement plans developed or in development for the remainder.

**Red score:**

» Unexplained failure to identify and act upon more than two barriers; OR
» Failure to develop and implement strategies to overcome barriers for more than 50% of identified the barriers.

## Limitations

The % limits have not been able to be established by research and are therefore arbitrary. Results will vary across cultures and limit comparability. For example in the most developed countries' organizations will have a common understanding of the need to make building accessible to stakeholders with limited mobility and this may be reinforced by laws and building regulations. In less developed countries and in particular in remote and rural areas there may be no such mores or laws. Within international trade, engagement barriers and means to overcome them among some stakeholders (e.g. clients) are much more complex in real world even for enterprises with a relatively significant governance capacity, size and commitment to sustainability.

## Sources of information

**EPA.** 2001. *Stakeholder Involvement and Public Participation at the US EPA. Lessons Learned, Barriers and Innovative Approaches.*

**Grossman, J.M., Kushner, K.L. and November, A.E.** 2008. Creating Sustainable Local Health Information Exchanges: Can Barriers to Stakeholder Participation Be Overcome? *Center for Studying Health System Change*. Research Brief (2):1-12. Washington DC.

**Revit.** 2007. Working towards more Effective and Sustainable Brownfield Revitalization Policies. Stakeholder Engagement – a Toolkit.

INDICATOR NAME **EFFECTIVE PARTICIPATION (G 3.1.4)**
DIMENSION **GOVERNANCE**
THEME **PARTICIPATION (G 3 )**
SUB-THEME **STAKEHOLDER DIALOGUE (G 3.1)**

## Description

Stakeholder engagement is of greatest value when an organization can incorporate the views of its stakeholders in its decision-making. Demonstrating how stakeholder engagement has influenced the enterprise's decisions is the test which is applied. The process of this enquiry is likely to lead to enhanced stakeholder engagement and a greater value being placed on stakeholder views. Giving stakeholders feedback about how their engagement was used and what it has changed is important to maintain trust and build the relationships that encourage proactive dialogue from stakeholders. Failure to ensure effective feedback can contribute to consultation fatigue.

## Relevance to enterprise type and supply chain levels

Any enterprise which has genuinely engaged its stakeholders should be able to show the effect of this engagement on the enterprise's decisions and actions.

## Unit of measurement

The impact assessment of stakeholder participation is necessarily qualitative. While we can measure the number of stakeholder views incorporated, the true measure of performance is really how great the impact has been. This is particularly true where the incorporation of stakeholder views comes at real cost to the enterprise, such as where a decision not to proceed with a project due to stakeholder dissatisfaction. This involves the careful balance of all the pillars of sustainability.

## How to measure

» List the decisions which have been affected by stakeholder feedback.
» Describe how feedback was provided to stakeholder groups on their input or feedback.

## Rating

**Dark Green score:**
The enterprise is able to identify how decisions have been impacted by stakeholder engagement and has evidence (minutes, notes, source documents) of the impact and the enterprise has evidence of how the impact of stakeholder engagement was communicated back to stakeholders.

**Red score:**
» The enterprise has not engaged stakeholders, or is unable to demonstrate that its stakeholder engagement has genuinely affected the decisions it has made; OR
» The enterprise routinely fails to inform stakeholders of the outcome of engagement.

## Limitations

It is possible, although unlikely, that an enterprise could be genuinely engaged with its stakeholders but that the views of these stakeholders have not influenced its decisions. It is very unlikely this would happen repeatedly and would demand further inquiry.

## Sources of information

**Australian Government.** 2008. *Stakeholder Engagement. Practitioner Handbook.* National Communications Branch of the Department of Immigration and Citizenship. Version 2.0.

**EPA**. 2001. *Stakeholder Involvement and Public Participation at the US EPA. Lessons Learned, Barriers and Innovative Approaches.*

**International Finance Corporation**. 2007. *Stakeholder Engagement: a Good Practice Handbook for Companies Doing Business in Emerging Markets.*

INDICATOR NAME **GRIEVANCE PROCEDURES (G 3.2.1)**
DIMENSION **GOVERNANCE**
THEME **PARTICIPATION (G 3 )**
SUB-THEME **GRIEVANCE PROCEDURES (G 3.2)**

## Description

Asymmetries of power can be reduced with the provision of clear, accessible and fair grievance procedures. The procedures need not be identical for all stakeholder groups but should follow the principles of natural justice and be designed to be culturally appropriate and where possible, mirror processes which are familiar to, and respected by, the stakeholder group.

## Relevance to enterprise type and supply chain levels

This indicator is primarily relevant to large-scale operations. However, it should be considered relevant for any enterprise for which indicator G3.1.1 (Stakeholder Identification) was deemed relevant. It is also relevant for any operation of any type or size that has any number of employees, even 1, as employees are considered a stakeholder group.

## Unit of measurement

It is important that procedures are available for as many stakeholders as possible but it is the operation of procedures and the satisfaction of stakeholders which is of greatest importance. This might be measured by sampling affected stakeholders to test whether they know about and are satisfied with procedures.

## How to measure

In most enterprises, there will be some statutory requirement for some stakeholders, for example employees. The indicator is reliant on the effective identification of stakeholder groups (G3.1.1.) More sophisticated organizations and those with strong governance capacity will have well developed grievance procedures; however these need not be complex or expensive to operate and simpler systems are available to smaller or less formal organizations.

- List the stakeholders (G3.1.1) and assess which have an available grievance procedure.
- Canvas stakeholders to assess stakeholder satisfaction with the procedures.

## Rating

**Dark Green score:**
The enterprise is able to identify grievance procedures for all affected stakeholders and these are proactively publicized. These procedures meet the standards of natural justice and are supported by stakeholders, and the enterprise can provide evidence that procedures are being used and reports are of satisfactory resolutions.

**Red score:**

» The enterprise has no formal grievance procedures for any stakeholders or has procedures which do not meet the standard of natural justice; OR

» The stakeholders overwhelmingly reject the processes used and there is widespread distrust of the procedures.

## Limitations

There is some cross-over with the indicator G 3.3.1 (Conflict Resolution).

## Sources of information

**International Finance Corporation.** 2009. *Project-Level Grievance Mechanisms for Affected Communities.*

**New Britain Palm Oil Limited.** 2009. Grievance Procedure for Stakeholder Issues.

**UN General Assembly**. 2011. Piloting Principles for Effective Company/Stakeholder Grievance Mechanisms: a Report of Lessons Learned. Report of the Special Representative of the Secretary- General on the Issue of Human Rights and Transnational Corporations and other Business Enterprises, John Ruggie. *Human Rights Council, XVII session, Agenda item 3.*

INDICATOR NAME **CONFLICT RESOLUTION (G 3.3.1)**
DIMENSION **GOVERNANCE**
THEME **PARTICIPATION (G 3)**
SUB-THEME **CONFLICT RESOLUTION(G 3.3)**

## Description

All enterprises have real or potential conflicts with their stakeholders. Conflicts can be disputes of interests where the rights of the parties are in conflict and have not been resolved, or disputes of rights where the interests of the parties have been resolved but the interpretation of the rights conferred are in dispute. To achieve compliance with this indicator, organizations will need to show that conflicts of stakeholder interests with the enterprise's activities are resolved through collaborative dialogue (which could be arbitrated, mediated, facilitated, conciliated or negotiated), based on respect, mutual understanding and equity. Addressing conflicts within and between sectors requires engagement with different stakeholders.

## Relevance to enterprise type and supply chain levels

This indicator is primarily relevant to large-scale operations. However, it should be considered relevant for any enterprise that indicator G3.1.1 (Stakeholders Identification) was deemed relevant. It is also relevant for any operation of any type or size that has any number of employees, even 1, as employees are considered a stakeholder group.

## Unit of measurement

While it is possible to introduce metrics around number of disputes and disputes resolved for the purposes of reporting and audit, it is the qualitative work of identifying potential conflicts and ranking potential and actual conflicts which will be the most illuminating.

## How to measure

All enterprises will experience conflicts of interests because they operate in an environment where there is competition for markets and resources. Most will also experience conflicts of rights because it is difficult to be clear and explicit about the rights in each stakeholder relationship at all times. Recurrent conflicts or disputes of rights should be treated as an indicator that the enterprise needs to improve the standard of its communications in this area or that the dispute of interest has not been satisfactorily resolved.

- The enterprise can show that it proactively identifies potential conflicts of interest with and amongst its stakeholders.
- Identify examples of actual conflicts, with descriptions of how they were resolved, providing evidence of (examples showing) how they were based on collaborative dialogue, and were based on values of respect, mutual understanding and equity.
- Count the number of identified stakeholder conflicts of interest and the number successfully resolved; complainants are sampled to assess the degree of satisfaction.

## Rating

**Dark Green score:**

All relevant stakeholder groups are identified and there is no unexplained obvious omissions of significant potential conflicts. Also, the enterprise has identified examples of *actual* conflicts, with descriptions of how they were resolved, providing evidence of how they were based on collaborative dialogue, and were based on values of respect, mutual understanding and equity. If no examples of conflicts of interest exist from the last five years, the enterprise should be able to describe *how* it would resolve a potential conflict in this way, and provide actual examples.

**Red score:**

» The enterprise has identified less than 50% of relevant stakeholders, or more than two unexplained obvious omissions; OR

» The enterprise cannot provide actual examples demonstrating collaborative dialogue and cannot provide hypothetical (and realistic) scenario demonstrating collaborative dialogue, or consistent with values of respect, mutual understanding and equal power.

## Limitations

Many enterprises may not consider conflicts before they happen and it may take time to build proactive behaviour. Procedures tend to be written following "western" concepts of justice and resolution and these do not resonate well with all cultures. Care will be needed to ensure appropriate procedures are available for diverse stakeholders.

## Sources of information

**Deane K.I.** 2005. The principles of Conflict Management. *LamSquare.*

**FAO.** 2003. Trading Module on Conflict Management. *In A handbook for trainers on participatory local development: the Panchayati Raj model in India.*

**McCarthy C.** 1998. Principles of Conflict Resolution. *The Global Development Research Center.*

**Poolman, M., Munamati, M. and Senzanje, A.** Stakeholder and Conflict Analysis. *Small Reservoirs Toolkit.* Accessed on Sept. 2013.

**Watt Works Consulting**. Principles for Conflict Resolution. Accessed on Sept. 2013.

INDICATOR NAME **LEGITIMACY (G 4.1.1)**
DIMENSION **GOVERNANCE**
THEME **RULE OF LAW (G.4)**
SUB-THEME **LEGITIMACY (G 4.1)**

## Description

Operational legitimacy will firstly be judged by the enterprise's adherence to the rule of law. Legal or regulatory breach is a significant reputational risk for an organization and it is important that its governance body is fully informed and setting clear direction for management. This does not mean that the enterprise will always necessarily obey the rule of law but that any breach must be considered seriously at a governance level and be assessed against the enterprise's mission and values. Adherence to the rule of law is a minimum standard and to achieve excellence in this indicator, the enterprise will be able to prove that it has gone beyond the rule of law by adopting and complying with applicable international voluntary codes consistent with its mission. This supra- legal initiative can be progressively adopted and its development should be included in organizational plans. For example, a bakery might decide it wants to support its "good food from good folks" motto by using fair trade ingredients but wants to adapt its product line over time. It might adopt Fair Trade standards as an aspirational goal and report to its customers and stakeholders its progress as it incorporates more Fair Trade ingredients into its baking.

## Relevance to enterprise type and supply chain levels

Rule of law is a minimum standard and applies to all enterprises in the supply chain. Some of the voluntary codes will be less accessible to smaller enterprises and those with limited governance capacity; however the inclusion in the indicator provides some guidance for development.

## Unit of measurement

Such as for many governance indicators, this is primarily qualitative rather than quantitative. It can however be easily measured by considering: percentage of laws and regulations reported; how many times an enterprise has been legally challenged (i.e. sued) over a dispute of rights; how many voluntary codes of conduct are being abided by (in addition to the rule of law); how regularly the matter is reviewed at a governance level in the enterprise.

## How to measure

Using board agendas, minutes or other governance records, there is need to establish:

- That the legal and code compliance is reported to the board.
- That the legal compliance, code compliance and other potential voluntary codes are tested by the governance body against mission.
- How frequently this is reviewed.
- That the importance of compliance is communicated throughout the enterprise.

» The enterprise will need to be able to provide evidence of due diligence to establish any pre-existing rights to land water or resources being used. In the case of natural resources, this should include mapping.
» When board agendas and other official records are not available, consider using individual verbal accounts, notes of agreements and/or compliance and all other unofficial forms of records of rights and compliance.

## Rating

**Dark Green score:**

» The enterprise can provide evidence of a governance-endorsed risk management strategy in operation to ensure legal and regulatory compliance - including of any standards voluntarily entered into and international human rights standards – and all laws, regulations and codes voluntarily entered into are included in this evidence; AND
» The governance body reviews this and any codes not yet adopted which may be applicable against mission; AND
» The results of the review form part of a regular monitoring report to stakeholders.

**Red score:**

» The enterprise is known to be in breach of laws, regulations and adopted codes but this has not been the subject of governance scrutiny; OR
» There is no evidence of a governance endorsed risk management strategy in operation, or the strategy is seriously inadequate.

## Limitations

» A strategy of its own does not mitigate risk and this is covered in G 4.1.2. The enterprise's internal communication and command structures are relied upon in this indicator; these may be weaker in enterprises with great geographical spread, particularly where parts of the enterprise are operating under different jurisdictions and cultures.

## Sources of information

**Deloitte Development LLC.** 2012. The Risk Intelligent General Counsel. Discard the Compass and Get a GPS. *The Risk Intelligence series,* (26).

**Metric Stream White Papers**. Governance, Risk and Compliance Framework. Accessed on Sept. 2013.

**Ponemon Istitute.** 2011. The Role of Governance, Risk Management and Compliance in Organizations. *Ponemon Istitute Research Report.*

INDICATOR NAME

# REMEDY, RESTORATION AND PREVENTION (G 4.2.1)

DIMENSION GOVERNANCE
THEME RULE OF LAW (G.4 )
SUB-THEME REMEDY, RESTORATION, AND PREVENTION (G 4.2)

## Description

Operational legitimacy will firstly be judged by the enterprises's adherence to the rule of law and its ability to promptly remedy any breach, restore or compensate the effects of any breach, and put in place mechanisms to prevent any future breach. The same regime applies to less sanctioned rules, such as local or national regulations and voluntary codes to which the enterprise may subscribe or support and should be applied to international human rights standards. While it is ideal for any remedy to be applied immediately, this is not always practicable where significant investigation is required. Enterprises will need to show that there is no undue delay in any of the remedies, restorations or compensations and implementation of preventative measures in order to fully comply with the standard.

## Relevance to enterprise type and supply chain levels

Rule of law is a minimum standard and applies to all entities in the supply chain.

## Unit of measurement

In common with many governance indicators, this is primarily qualitative rather than quantitative. It can however be easily measured by considering the following:

» Percentage of law, regulatory, international human rights or voluntary code breaches satisfactorily remedied and restored or compensated and having preventative measures in place; however, numbers would not reflect the qualitative impact of the breaches. For example, nine minor traffic infringements may have been resolved and one major toxic spill not; the metric would show 90% compliance but the impact on the enterprise, its reputation, stakeholders and the environment could be catastrophic.

## How to measure

All organizations should have an understanding and plan for how to comply with and respond to breaches of laws, regulations, international human rights standards and voluntary codes. Compliance with environmental standards, labor rights and food safety in particular cannot be treated as optional behaviours in any enterprise. Using board agendas, minutes or other governance records, there is need to establish:

» That any breaches of the law, regulation, international human rights or voluntary codes are recorded and reported to the board.

» That these breaches have been examined and that the enterprise has records of how they were promptly dealt with including: how the breach was remedied; how the effects were restored or compensated and how the adequacy of this restoration or compensation was tested; the policy and process changes that have been instituted to prevent a further breach.

## Rating

**Dark Green score:**
The enterprise can provide evidence of the prompt remedy, restoration or compensation and action to prevent further breach and a review with any affected stakeholder confirms the adequacy of restoration or compensation arising from any breach.

**Red score:**

» The enterprise is known to be in breach of laws, regulations and adopted codes but has no evidence that these have been satisfactorily remedied; OR

» The enterprise has failed to restore or compensate a significant breach.

## Limitations

Enterprises may begin to address this indicator only when a breach has occurred and needs to be read in conjunction with the earlier prevention strategies (G 4.1). Emphasis needs to be placed on the policies and processes developed and implemented to prevent further breaches. Compliance will become complicated where breaches are highly contested.

## Sources of information

**Metric Stream White Papers**. Governance, Risk and Compliance Framework. *Metric Stream White Papers*. Accessed on Sept. 2013.

**Ponemon Institute.** 2011. *The Role of Governance, Risk Management and Compliance in Organizations.* Study of GRC Practitioners.

INDICATOR NAME **CIVIC RESPONSIBILITY (G 4.3.1)**
DIMENSION **GOVERNANCE**
THEME **RULE OF LAW (G 4 )**
SUB-THEME **CIVIC RESPONSIBILITY (G 4.3)**

## Description

Enterprises in the food and agriculture supply chain include very powerful global and national businesses. To achieve excellence in this indicator organizations will need to show that they proactively use that power responsibly and on behalf of the least powerful stakeholders and those who cannot claim their rights. Enterprises directly or indirectly engaged in activities which seek to reduce the rights of less powerful stakeholders and those who cannot claim their rights will not meet this indicator.

## Relevance to enterprise type and supply chain levels

This indicator will primarily apply to larger enterprises and those with a larger realm of influence. However, small-scale producers with a commitment to sustainability may be just as active in their communities as large operations. The assessor may choose to include this indicator for small-scale producers by considering a different scale of activities they may engage in to achieve it.

## Unit of measurement

In common with many governance indicators this is primarily qualitative rather than quantitative. This is achieved when all parts of the supply chain are free from exploitation of individuals, communities and the environment across all four dimensions of sustainability. There may be some value internally in tracking expenditure on lobbying but it is unlikely to yield a useful metric.

## How to measure

Large enterprises and organizations representing them can and do become involved in representations and lobbying to influence laws, regulations, international human rights and voluntary codes. For example some enterprises have been involved in lobbying for lower legal minimum wages. Others have sought to reassure their customers that their products are free from exploitation by adopting voluntary codes and become actively involved in promoting and improving these codes. Using board agendas, minutes or other governance records, there is need to establish:

- A register of all peak bodies or lobbying groups to which the enterprise belongs.
- Records of any lobbying direct or indirect in which the enterprise seeks to influence laws, regulations, international human rights codes or other voluntary codes.
- Testing these activities against mission and against the interests of the least powerful and those who cannot claim their rights.
- Where evidence of lobbying is found, the impact of this is tested by seeking the views of affected stakeholders.

## Rating

**Dark Green score:**

» The enterprise has clear records/register of all groups of which it is a member or supports which are involved in activities which seek to influence laws, regulations, international human rights codes or voluntary codes; AND

» Examination of the records shows no activities directly or indirectly by the enterprise to reduce the coverage or impact of these laws, regulations, international human rights codes and voluntary codes; AND

» Where evidence is found of lobbying, the affected stakeholders have been consulted and support the activities.

**Red score:**

» The enterprise is found to support organizations who have been lobbying to influence laws, regulations, human rights codes and voluntary codes against the interests of the least powerful and those stakeholders who cannot claim their rights; OR

» The governance body has not been informed or directed the lobbying efforts of the enterprise or its agents; OR

» Lobbying is not conducted in an open and transparent manner and attempts are made by the enterprise to disguise its lobbying activities.

## Limitations

This could be burdensome for very small enterprises who are members of large advocacy groups but have little practical ability to influence these.

## Sources of information

**Spolar, C. and Eaton, J.** 2010. Food Lobby Mobilizes, as Soda Tax Bubbles up. *Huffington Post.*

**Watson, E.** 2013. Lobbying by Agri-business Killed New Mexico GMO Labelling Bill, Claim Supporters. *In Foodnavigator-usa.com,* William Reed Business Media.

INDICATOR NAME

# FREE, PRIOR AND INFORMED CONSENT (G 4.4.1)

DIMENSION GOVERNANCE
THEME RULE OF LAW (G 4 )
SUB-THEME RESOURCE APPROPRIATION (G 4.4)

## Description

An enterprise will have its reputation compromised and may suffer in the market if it reduces the existing rights of communities to land, water and resources, particularly if the livelihoods of the communities have been reduced. The principles of Free, Prior and Informed Consent (FPIC) have been developed through extensive consultation to protect communities from unscrupulous resource exploitation and misappropriation. They also provide guidance for enterprises on how to work fairly with communities and some degree of protection to the organization's reputation. Critical to the effective operation of PFIC is the ability for the affected community to be informed. This includes the provision of information, independent advice and the capacity to self-organize for the purposes of representation.

## Relevance to enterprise type and supply chain levels

The loss of land, access to water, biodiversity and other natural resources is now a matter of global concern. This is particularly true in the food and agriculture supply system with large scale transfers of agricultural land. It has relevance for all enterprises across the supply chain and failure to follow FPIC principles is a serious governance risk.

## Unit of measurement

In common with many governance indicators, this is primarily qualitative rather than quantitative, based on the implementation of FPIC principles.

## How to measure

- The enterprise will need to be able to provide evidence of due diligence to establish any pre-existing rights to land, water or resources being used. In the case of natural resources, this should include mapping.
- The enterprise should have incorporated the principles of FPIC into its governance policy.
- It needs to be able to provide evidence that each of the principles of FPIC has been addressed to the satisfaction of affected stakeholders.

## Rating

**Dark Green score:**

- The enterprise can demonstrate awareness of stakeholder's pre-existing access to land, water, biodiversity and natural resources, by community asset mapping or other equivalent process; AND
- Has evidence of satisfying the standard and its stakeholders in respect of the principles of FPIC; AND
- Has evidence it recognizes any asymmetries of power between itself and affected communities and it has worked to ensure communities are well represented in any negotiations.

**Red score:**

» Not all 3 components of FPIC are addressed for all affected stakeholders, or there is any evidence of deceit or deception in the process.

## Limitations

Because it is so situation-specific, it is difficult to compare performance fairly across organizations.

## Sources of information

**Campbell, J., Oxman, M., Natour, F. and Baddache, F.** 2012. Engaging with Free, Prior and Informed Consent. *In BSR.*

**Cultural Survival.** Free, Prior and Informed Consent Initiative: Building Informed and Organized Indigenous Communities. Accessed on Sept. 2013.

**FAO.** 2009. *Land Grab or Development Opportunity? Agricultural Investment and International Land Deals in Africa.* FAO Natural Resources Department.

**Forest People Programme**. Free, Prior and Informed Consent (FPIC). Accessed on Sept. 2013.

INDICATOR NAME **TENURE RIGHTS (G 4.4.2)**
DIMENSION **GOVERNANCE**
THEME **RULE OF LAW (G 4 )**
SUB-THEME **RESOURCE APPROPRIATION (G 4.4)**

## Description

Tenure systems define and regulate how people, communities and others gain access to natural resources, whether through formal law or informal arrangements. The rules of tenure determine who can use which resources, for how long, and under what conditions. They may be based on written policies and laws, as well as on unwritten customs and practices. The responsible governance of tenure ensures access to land, fisheries and forests are equitably shared. It protects economically and socially marginalized people from alienation from the resources they need to live. Weak governance of tenure is also associated with the over-exploitation of natural resources and consequential environmental degradation.

## Relevance to enterprise type and supply chain levels

The loss of land, access to water, biodiversity and natural resources is now a matter of global concern. This is particularly true in the food and agriculture supply chain, with large scale transfers of agricultural land. It has relevance for all enterprises across the supply chain.

## Unit of measurement

In common with many governance indicators, this is primarily qualitative rather than quantitative, based on the degree of implementation of the Voluntary Guidelines on the Governance of Tenure. Key principles include transparency, recording and valuing tenure and access rights, acting with due diligence to prevent infringing tenure rights, and co-operating to remedy any breach of these.

## How to measure

The enterprise governance records are reviewed and key staff interviewed.

## Rating

**Dark Green score:**
The enterprise has a record of all transactions related to tenure and access rights and can show clearly all the principles of the Voluntary Code on the Governance of Tenure are met. Where there has been any breach or alleged breach of tenure rights, the enterprise can prove that it has fully and promptly co-operated with any inquiry and remedy process to the satisfaction of affected parties.

**Red score:**
» The enterprise has no records of any due diligence over tenure rights; OR
» Has repeatedly been involved in disputes over a breach of tenure rights; OR
» Has failed to remedy tenure and access rights breaches with its stakeholders.

### Limitations

Breaches are often only discovered where the affected party is able to raise a dispute. Where the affected party has limited rights, or no spokeperson, in the case of unclaimed yet exploited natural resources, the breach may continue without being raised and therefore made visible.

### Sources of information

**FAO**. 2012. About the Voluntary Guidelines on the Responsible Governance of Tenure.

INDICATOR NAME

# SUSTAINABILITY MANAGEMENT PLAN (G 5.1.1)

DIMENSION GOVERNANCE
THEME HOLISTIC MANAGEMENT (G 5 )
SUB-THEME SUSTAINABILITY MANAGEMENT PLAN (G 5.1)

## Description

Although good planning is as old as science management, sustainability plans are a relatively recent phenomenon used by an organization to provide good governance guidance for its sustainability efforts and to assist in incorporating the values and aspirations for sustainability in business planning. The business planning cycle enables governance bodies to hold management accountable for implementing the direction and targets set for the enterprise. Sustainability planning is rapidly becoming the norm in developed countries' business. With report showing an increase in American businesses having or developing such plans from 38% in 2011 to 64% in 2013, there is a need to ensure these plans are holistic and cover each of the four pillars of sustainability. In forestry, the preparation of a comprehensive forest management plan is a fundamental requirement for sustainable forest management.

## Relevance to enterprise type and supply chain levels

This indicator is relevant to operations of all sizes and types, but the formality of the activities involved will change depending on the scale of the enterprise. Small-scale producers may not have a formal plan but may set individual goals for sustainability informally. In the forest sector, a forest management plan is useful for enterprises of all scales, including small-scale and community forestry.

## Unit of measurement

In common with many governance indicators, this is primarily qualitative rather than quantitative. It could be appropriate to help measure internal progress by tracking the extent of the plan and in particular, to note that all four sustainability dimensions are covered.

## How to measure

Larger enterprises and organizations are increasingly adopting sustainability plans as the norm. Some who have been doing these for many years are reporting significant cost-savings as a result. Simpler and introductory templates are now available for smaller enterprises, and community development leaders are developing processes for less literate groups. While the plan itself is important as evidence of a proactive and integrated approach to sustainability, it is also important to be able to show the values informing better decision-making. Using board agendas, minutes or other governance records there is need to establish:

- If the enterprise has a formal sustainability plan, or, in the forest sector, a comprehensive forest management plan.
- Evidence, via case studies, of how the plan or the values embodied in it are helping the enterprise make sound decisions to improve their operations in a sustainable way.
- Evidence that each of the four dimensions of sustainability is addressed by the plan.

## Rating

**Dark Green score:**
The enterprise has a formal sustainability plan endorsed by the governance body and is able to provide evidence of the plan or values in it being used to improve the sustainability of the enterprise operations, as a result of better decision-making. The plan covers each of the four pillars of sustainability.

**Red score:**

» The organization has no sustainability plan; OR
» The organization cannot articulate the values and aspirations a plan might address; OR
» The plan does not address each of the four sustainability pillars; OR
» The plan is not implemented.

## Limitations

This indicator is rather binary, either you have a plan or you don't and need to have some graduation of score to encourage the development of plans.

## Sources of information

**National Service Knowledge Network.** Sample Sustainability Plan. *ETR Associates*. Accessed on Sept. 2013.

**Environmental Leader**. 2013. Corporate Sustainability Plans 'Almost Double Year-on-Year'.

**Tork.** 2012. *Tork Report: The Sustainability Gap*.

**The University of Vermont**. Business Sustainability – Implementing a Sustainability Plan at your Company. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# FULL-COST ACCOUNTING (G 5.2.1)

GOVERNANCE
HOLISTIC MANAGEMENT (G 5 )
FULL-COST ACCOUNTING (G 5.2)

## Description

Traditional accounting systems deal predominately in actual $ costs in the current year. Matters outside of this, particularly where the $ cost is difficult to determine or has not been valued, are treated as externalities (matters outside the business equation). As consumers, stockholders and other stakeholders become more aware and concerned about the potential environmental and social impacts of business, they are demanding better information about the organizations' performance in these areas. This movement began as "Triple bottom line" reporting, demanding that an organization's performance needs to be assessed in economic, social and environmental terms. Reporting performance through financial accounts is the most established method by which stakeholders judge the performance of a business, so it is unsurprising that there are now calls for change in how accounting represents the full performance and impact of an enterprise. Movements such as triple bottom line reporting, social auditing and environmental accounting have all contributed to an emerging field of work which seeks to improve the accuracy and use of full-cost accounting. These initiatives will enable enterprises to make better decisions because they more fully understand the full impact of their decisions. For example, understanding the opportunity cost in environmental and reputational terms may enable an enterprise to justify a more responsible, yet more expensive (in strictly present $ terms), business process. The full-cost accounting process makes transparent both direct and indirect subsidies received, as well as direct and indirect costs. It is widely acknowledged by economists that markets fail to reflect the full value of forests, including biodiversity, climate stabilization, water qualify, wildlife and non-wood forest products. Similarly, the livelihoods of millions of forest dwellers are not accounted for in national economic statistics. While this is a complex and difficult subject with no easy answers, analyses of the sustainability of forests and forest enterprises need to find ways to take these important values into consideration. There is not yet an international consensus on an all encompassing standard for full-cost accounting. However, very sound work is emerging with comparable tools for some aspects of the accounts, such as measuring an enterprise's carbon footprint.

## Relevance to enterprise type and supply chain levels

Full-Cost Accounting (FCA) is an emerging field. It will be more relevant for the champions of sustainability and those organizations prepared to invest to develop systems. Over time, it is likely the principles will become more accessible to smaller organizations, as open source or low cost web based tools are developed. One area where small formal groups may be ahead is in where these are using some of the low technology tools developed by NGOs to inform decision-making about rural labour and resource use.

## Unit of measurement

Because there is, as yet, no universal FCA standard, this indicator cannot be usefully metricized for the purposes of external comparison. Progress towards a FCA approach can be measured but the progress will inevitably be subjective because there is no complete standard against which to measure. Moreover, as understanding of social and environmental impacts grow, so will the capacity to include these in accounts. This elasticity will render progress metrics unreliable.

## How to measure

Using governance reporting records, there is need to establish:

» That the enterprise is collecting, analyzing and reporting data on each of its economic, social and environmental performance and impacts.

» The enterprise can describe how it plans to improve its FCA reporting, the obstacles it has faced and how it plans to overcome these.

## Rating

**Dark Green score:**

The enterprise has evidence that it collects, analyze and reports to its stakeholders on its economic, social and environmental impacts and performance, and it understands the emerging discipline of FCA and is actively involved in improving the scope and validity of its FCA reporting.

**Red score:**

» The enterprise does not account for its impact and performance using any FCA regime; OR

» The enterprise has significant costs on the environment and community which are externalized from its accounting systems; OR

» The enterprise has FCA reports which are not validated.

## Limitations

As an emerging field, the indicator will become more useful over time. At this point, it is probably formative rather than summative for all but the largest organizations or those with very strong commitment to sustainability and good governance.

## Sources of information

**Almihoub, A.A., Mula, J.M. and Rahman, M.M.** 2013. Are there Effective Accounting Ways to Determining Accurate Accounting Tools and Methods to Reporting Emissions Reduction? *Journal of Sustainable Development 6(4).*

**EPA.** 1996. *Full Cost Accounting Resource Guide.* EPA530-R-95_077

**McCandless, M., Venema, H.D., Barg, S. and Oborne, B.** 2008. *Full Cost Accounting for Agriculture - Final Report.* Valuing public benefits accruing from agricultural beneficial management practices: an impact pathway analysis for Tobacco Creek, Manitoba. IISD.

**Slaper, T.F. and Hall, T.J.** 2011. The Triple Bottom Line: what is it and how does it work? *Indiana Business Review.*

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METHODOLOGICAL SHEETS

# ENVIRONMENTAL INTEGRITY INDICATORS

INDICATOR NAME **GHG REDUCTION TARGET (E 1.1.1)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **ATMOSPHERE (E 1)**
SUB-THEME **GREENHOUSE GASES (E 1.1)**

## Description

GHG Reduction Target refers to having a written plan that sets a measurable and binding goal in achieving a decrease of GHG emissions, compared with baseline levels as identified by the operation. The target could be phrased in percentage, total absolute amounts, or in per unit of production.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes. Small-scale enterprises may or may not have a written GHG reduction target, thus they may opt to omit this indicator. Knowledge of where GHG emissions occur throughout the post-harvest supply chain and the volume of emissions from each source provides crucial input into developing an appropriate, effective and efficient strategy. Relevant partners such as transportation enterprises, wholesalers and multinational retailers should have clear targets. In the case of small-scale enterprises, especially processors, packers and marketers in some subsectors, the eventual lack of a database and experience may be an important gap to fill.

## Unit of measurement

This indicator refers to whether the enterprise has set a target in reducing GHG emissions in the analyzed enterprise's operations during the analyzed time-frame.

## How to measure

Determine if the enterprise has a written and binding plan – available to all stakeholders - that includes a target for the reduction of GHG emissions with exact steps on how that could be achieved within the expected time-frame. Ideally, the target should not only refer to the reduction of emissions on the enterprise's sites (including emissions from energy) and from land use and land cover change directly under the control of the enterprise, but should also include indirect emissions, such as those of resulting from input production.

## Rating

**Dark Green score:**

» The enterprise has a written plan, available to all stakeholders, with GHG emission targets AND

» Steps have been already implemented towards achieving that objective.

**Yellow score:**

» The enterprise has a plan with a set target for the reduction of GHG emissions , but no steps have been yet made towards achieving that objective; OR

» The enterprise has a target and has been implementing steps towards reducing GHG emissions, however this has not been put into writing; OR
» The enterprise has a plan with a set target for the reduction of GHG emissions, and steps have been yet made towards achieving that objective, however the plan is not available for all of the stakeholders.

● **Red score**
is given if none of the above requirements has been met as yet.

### ✗ Limitations

Enterprises may have a target referring to a very long-term perspective (e.g. 2050), making it difficult to monitor whether steps have been made each year towards the reduction of emissions. Utilizing the next two indicators, in conjunction with this one, helps overcoming this limitation.

### ☞ Sources of information

**IPCC.** GHG Reporting Guidelines.

**Alvik, S., Eide, M.S., Endresen, O., Hoffmann, P. and Longva, T.** 2009. *Pathways to Low Carbon Shipping. Abatement Potential towards 2030.* DNV (Det Norske Veritas AS).

**IMO.** 2012. Reduction of GHG Emissions from Ships. Proposal to the International Maritime Organization submitted by the United States of America, July 2012.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# GHG MITIGATION PRACTICES (E 1.1.2)

ENVIRONMENTAL INTEGRITY
ATMOSPHERE (E 1)
GREENHOUSE GASES (E 1.1)

## Description

This indicator refers to all practices that aim at reducing the GHG emissions from food and agriculture systems. Many practices can potentially mitigate emissions, such as improved livestock and manure management, improved cropland management, restoration of degraded lands, water and rice management, improved fuel efficiency in fishing boats, and reduced deforestation and forest degradation. Resource-efficient practices that reduce the need for fossil-based fuels and for nitrogen fertilizers, or that reduce the methane emissions of ruminants, or the implementation of more efficient refrigeration technologies or technical and operational technologies to reduce freight emissions, can help reduce GHG as well.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes. GHG emissions reductions should also be viewed as a mechanism to improve internal cost-efficiency. This indicator is relevant in the overall post-harvest value chain when including transportation, domestic and international sea, road and air freight, which account for a large percentage all total emissions. At processing and packaging stages, GHG will have a much reduced impact, depending on the enterprise activity. Traditional refrigerants used in cooling storage facilities and refrigerated transport also contribute to global warming. Overcoming the barriers to the wide-scale adoption of more climate-friendly refrigerants, more GHG efficient equipment and logistic means, is the great challenge to reducing GHG emissions.

## Unit of measurement

This indicator intends to capture the type of activities and practices that the enterprise has implemented which have effectively reduced the GHG emissions in the analyzed enterprise's operations during the analyzed time-frame. The activities – when applicable and feasible – have to be practiced on the entire enterprise's site.

## How to measure

» First decide which of the examples below of "best practices" have been already implemented on the entire enterprise (if applicable and feasible). The enterprise may enlist additional practices with high mitigation potential.
» Next decide which of the "unacceptable practices" listed below the enterprise has been engaged with. The score for this indicator should be "Red" if any of the enlisted "worst practices" is used, regardless of also having implemented some of the "best practices".

## Rating

**Dark Green score:**

**Cropland management**

» Soil fertility management with organic materials and improved fertilizer application timing.
» Extended crop rotations, use of cover crops, and avoidance of using bare fallows.
» Land-cover change to more complex and diverse systems, such as organic agriculture, agroforestry, mixed crop-livestock systems, mixed rice-fish system, sustainable rice intensification (SRI), intercropping, perennials, forest gardens, etc.
» Soil and water conservation measures, such as soil or stone bunds, drainage measures, swales, water harvesting, low-energy irrigation (if used).
» Reduced/zero tillage and incorporation of residues.
» Engines are regularly serviced and suitable (i.e. lowest-powered) tractors/machinery is used.
» The efficiency of fixed equipment is maintained, such as grain driers, refrigerated stores and bulk milk tanks.
» Installed thermal screens in glasshouses and polythene covered structures.
» Use of non-fossil fuel sources of energy.
» Water conservation techniques and water management in paddies.
» Restoration of degraded lands and/or drained organic soils.
» Implementation of sound agroforestry practices.

**Pasture and grazing management**

» Manure/slurry treatment (e.g. recovery of methane from lagoons).
» Controlled intensity and timing of grazing (e.g. stocking rate management, rotational grazing of livestock with improved genetic and nutritional management).
» Seeding fodder grasses or legumes with higher productivity and deeper roots.
» Implementation of sound agroforestry practices (e.g. integrated tree-livestock systems).

**Fisheries and aquaculture**

» Switch to more efficient vessels or gears, such as from single to twin trawls, sails.
» Expansion of the farming of molluscs and the culture of seaweed to increase carbon sequestration.

**Forestry**

» Improved practices that reduce forest degradation and increase afforestation.
» Improved practices that reduce conversion of forest to other land uses.
» Adoption of best practices for forest harvesting and transport.
» Ensured reforestation to offset the removal of trees.

**Processing and marketing**

» Implementation of sound agricultural and manufacturing practices.
» Engines are regularly serviced and suitable (i.e. lowest-powered machinery).
» Maintenance of the efficiency of fixed equipment, such as rain driers, refrigerated stores, freezing and pre-cooling equipment, milk tanks.
» Use of non-fossil fuel sources of energy.
» Upgrades for more energy efficient equipment, particularly in cold storage.
» Use of less intensive GHG emissions transportation means (e.g. air freight).
» Reduction of waste along the processing and storage stages.

**Red score:**

- Drainage of organic soils for cultivation; OR
- Creation of open-air lagoons from slurry; OR
- Application of high rates of nitrogen fertilizer; OR
- Overgrazing or high stocking rates; OR
- Land-use changes that reduce ecosystem soil C stocks (e.g. deforestation, ploughing long term grasslands); OR
- Use of large-scale annual monocultures; OR
- Practice of slash-and-burn or burning of residues.

## Limitations

Consensus on best practices for dealing with these challenges does not yet exist. Some practices, such as dairy cow diets that are poor in fiber and thus reducing methane emissions, can be linked with other SAFA themes, in this case Animal Welfare, via trade-offs.

## Sources of information

**Cochrane, K., De Young, C., Soto, D. and Bahri, T.** (*eds*). 2009. Climate Change Implications for Fisheries and Aquaculture: Overview of Current Scientific Knowledge. *FAO Fisheries and Aquaculture Technical Paper,* No. 530, pp.107-150. FAO. Rome.

**Crown and Carbon Trust.** 2008. *Guide PAS 2050:2011. How to Carbon Footprint your Products, Identify Hotspots and Reduce Emissions in your Supply Chain.* BSI.

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**DEFRA.** 2013. *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance.*

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**SA Fruit and Wine Industry**. 2010. *Carbon Calculator. The Protocol.* Version 1.1.

**Smith, P., Martino, D., Cai, Z., Gwary, D., Janzen, H., Kumar, P., McCarl, B., Ogle, S., O'Mara, F., Rice, R., Scholes, B., Sirotenko, O., Howden, M., McAllister, T., Pan, G., Romanenkov, V., Schneider, U., Towprayoon, S., Wattenbach, M. and Smith, J.** 2008. Greenhouse Gas Mitigation in Agriculture. Phil. Trans. R. Soc. B 27 vol. 363 no. 1492 pp. 789-813.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# GHG BALANCE (E 1.1.3)

ENVIRONMENTAL INTEGRITY
ATMOSPHERE (E 1)
GREENHOUSE GASES (E 1.1)

## Description

GHG Balance refers to the difference between the direct (and indirect) GHG emissions and the on-site sequestration by the enterprise. Direct GHG emissions are emissions from sources that are owned or controlled by the enterprise. On-site sequestration refers to practices such as afforestation and enrichment of soils with soil carbon on the sites of the enterprise.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for all enterprises. However, small-scale enterprises are most probably unable to calculate the GHG balance, thus they may omit this indicator. Even if the indicator is appropriate, it is very improbable that this indicator is used in the post-harvest chain, except for large maritime and air freight and multinational retailers.

## Unit of measurement

This indicator measures the balance between direct GHG emissions and on-site carbon sequestration (both expressed as ton $CO_2$ equivalent) in the analyzed enterprise's operations during the analyzed time-frame.

## How to measure

The general approach for calculating GHG emissions and/or removals is to apply the simple formula: $B_n = E - R$, where $B_n$ is the net balance, E is emissions, and R removals.

Both emissions and removals can be computed as the product of an activity data times an emission factor, thus, A*EF. Activity data A are any activities or objects that can emit GHG or sequester carbon (e.g. animal numbers, area of cultivated land, area of land use change such forest cleared). Default values for emission factors, valid either globally or regionally for all key activities, can be derived from the IPCC Guidelines on National GHG Inventories. Additional emission factor values can be found on IPCC's Emission Factor Data Base. Several tools exist that support such calculations, including one recently developed by FAO and freely available in FAOSTAT.

The assessor will need to quantify activities and objects. For $CO_2$ emissions: burning of carbon-based fuels (e.g. for transport, vessels, tillage), emissions arising from land use and land use change (e.g., draining of peatland, burning of forest land and peat, deforestation). For $CH_4$ emissions: ruminants, manure management, and rice cultivation. For $N_2O$ emissions: Nitrogen inputs into soils and manure management. For removals: afforestation and enhancement of soil organic matter through tillage practices, as well as any land use change resulting in increased storage of carbon above or below ground.

The minimum boundaries of the assessment are: direct emissions on the operation's sites (including emissions from equipment and energy, as well as non-mechanical sources; and

emissions from land use change directly under the control of the operations. If the operation can quantify indirect emissions (e.g. transport, feed production, fertilizer production, land-use change related to input and feed production) those should be included as well. If indirect emissions cannot be quantified, the likely hotspot areas should be identified and the rating should take these potential emissions into account. Sequestration on-site is preferred over removal activities off-site, including purchase of offsets from a third party.

When reporting emissions, make sure to either report yearly values from land use changes over a period of time (usually 20 years; in such case, 1/20$^{th}$ of the overall loss or gain has to be reported for the entire period after the activity has taken place) or report the entire emissions/removals at once, at the time of the event.

## Rating

**Dark Green score**

When the enterprise's net emissions are negative, that is, Carbon sequestration on-site is more than total GHG emissions.

**Red score**

When the enterprise's emissions are positive and are showing an increasing trend, that is emissions are greater than sequestration and emissions have increased during the last year or last assessed time.

## Limitations

Accounting for the GHG emissions from equipment and machinery on farms is relatively straightforward. But the emissions from non-mechanical sources, such as soils and livestock, are more challenging. Specific challenges include the variability in GHG emission rates over time and space, the difficulty in disentangling the effects of current management practices on GHG emissions from those caused by natural factors, and the reversibility of carbon stocks and the long time scales over which carbon stocks change. There is scientific uncertainty about the quantification of soil processes that lead to GHG emissions and carbon sequestration. Thus, a substantial error margin should be assumed when interpreting GHG balances. GHG balance applies to aquaculture where some sequestration is possible, but not to capture fisheries; this would imply that capture fisheries automatically score 'red' for this indicator, which is a limitation.

## Sources of information

**Cool Farm Tool.** Cool Farm Tool webpage. Accessed on Sept 2013 . (available at www.coolfarmtool.org)

**EX-ACT**. 2013. The Ex-Ante Carbon-balance Tool. (available at http://www.fao.org/tc/exact/en/)

**FAOSTAT**. 2013. Emissions Agriculture database. (available at http://faostat.fao.org/site/705/default.aspx)

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**Greenhouse Gas Protocol**. Accessed on Sept 2013. (available at www.ghgprotocol.org/)

**IPCC**. Emission Factor Database. Accessed on Sept 2013. (available at www.ipcc-nggip.iges.or.jp/EFDB/main.php)

**IPCC.** Task Force on National Greenhouse Gas Inventories. Accessed on Sept 2013 (available at www.ipcc-nggip.iges.or.jp)

**International Standards Organization (ISO)**. ISO 14064.2006. International Standard for GHG Emissions Inventories and Verification. (available at www.iso.org/iso/catalogue_detail?csnumber=38381)

INDICATOR NAME

# AIR POLLUTION REDUCTION TARGET (E 1.2.1)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME ATMOSPHERE (E1)
SUB-THEME AIR QUALITY (E 1.2)

## Description

Air Pollution Reduction Target serves to check the presence of a written plan that sets a measurable and binding target for the reduction and prevention of air pollution by the analyzed enterprise. Air pollutants include sulfuric and nitrous oxides, volatile organic compounds (VOC) and particulate matter (PM), ammonia, carbon monoxide, odor, smoke, emissions of pathogens and of ozone-depleting substances (e.g. chlorofluorocarbons).

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes that produce potentially polluting gaseous emissions. Small-scale enterprises that do not produce potentially polluting gaseous emissions may omit this indicator. Some post-harvest subsectors use metil-bromide (Group VI of EPA) as a quarantine treatment in special chambers for produce going to certain markets; plans should be in place for substitution in the short-run. Chlorofluorocarbon (CFCC) is used as refrigerant in many sector enterprises today.

## Unit of measurement

This indicator can be expressed as a percentage, in total absolute amounts, or per unit of production. This indicator serves to find out whether the enterprise has set targets for reducing the release of air pollutants from its operations during the analyzed time-frame. The target has to include non-greenhouse gas emissions resulting from land use and land cover change (e.g. burning of fields) if these occurred during the last 20 years.

## How to measure

» First, each production site of the enterprise where pollutant emissions can potentially occur needs to be screened for the types of pollutants it can emit.
» Then, determine for the concerned sites whether the enterprise has a written plan – available to all stakeholders - that includes measurable and binding targets for the reduction and prevention of air pollutant emissions, with exact steps that outline how these targets can be achieved within the expected time-frame.

## Rating

**Dark Green score:**

» The enterprise has a written plan, available to all stakeholders, with binding air pollution reduction and prevention targets; AND
» Steps have been implemented towards achieving the targets.

**Yellow score:**

» The enterprise has a plan with set targets for the reduction and prevention of air pollution, but no steps have been made towards achieving the targets; OR

» The enterprise has targets and has implemented steps for reducing and preventing air pollution, however this has not been put into writing; OR

» The enterprise has a plan with set targets for the reduction of air pollution, and steps have been made towards achieving the targets, however the plan is not available to all stakeholders.

**Red score**

None of the above requirements have been met yet.

## Limitations

Enterprises may have a target referring to a very long-term perspective (e.g. 2050), making it difficult to monitor whether steps have been made each year towards the reduction of emissions. Utilizing the next two indicators, in conjunction with this one, helps overcoming this limitation.

## Sources of information

**Aneja, V. P., Schlesinger, W.H. and Emerisman, J. W.** 2009. Effects of Agriculture upon the Air Quality and Climate: Research, Policy and Regulation. *Environ. Sci. Technol., 43 : 4234-4240.*

**EPA**. Ozone Depleting Substances. Substances Recognized by the Montreal Protocol. Accessed on Sept 2013.

**European Environment Agency**. Air pollution. Accessed on Sept. 2013.

**United Nations Economic Commission for Europe (UNECE).** 1999. *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone.*

**World Health Organization (WHO)**. 2011. Air Quality and Health. Factsheet 313. (includes a link to the 2005 WHO Air quality guidelines).

INDICATOR NAME

# AIR POLLUTION PREVENTION PRACTICES (E 1.2.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME ATMOSPHERE (E 1)
SUB-THEME AIR QUALITY (E 1.2)

## Description

This indicator refers to all practices that aim at preventing the release of air pollutants from food and agriculture supply chains. Air pollution derives from different sources, such as: biological air pollution (pollen, small insects, bacteria, fungi, yeasts and algae); physical air pollution (sound, smell, thermal pollution and radioactive radiation); and chemical air pollution (ground-level and stratospheric ozone, aerosols and ammonia). Many practices can reduce air pollution, for example: proper storage and application of manure; slurry and plant protection products; the installation of effective filters in stables and factories; the installation of spray towers and scrubbers; the use of clean fuels and of catalytic converters in engines of vehicles and boats. Forest fires, including the intentional burning of forests to facilitate conversion to agricultural land uses, are a major source of air pollution.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes that produce potentially polluting biological, chemical or physical emissions.

## Unit of measurement

This indicator captures all activities and practices that effectively reduce air pollution during the analyzed time-frame.

## How to measure

» First, each production site of the enterprise where pollutant emissions can potentially occur needs to be screened for the types of pollutants it can emit.
» Then check, for all concerned sites, which of the below examples of "best practices" that can help reduce or prevent air pollution, would be effective in the specific situation, and which of these have been implemented. The enterprise may enlist additional practices with high air pollution reduction and prevention potential.
» Next decide which of the "unacceptable practices" - listed below under "Rating" - the enterprise has been engaged with. The score for this indicator should be "Red" if any of the enlisted "worst practices" is used, regardless of also having implemented some of the "best practices".

## Rating

**Dark Green score:**

**Crop production**

» Soil fertility management with optimized fertilizer application rates and timing (both within the season and within the day); AND
» Maintenance of permanent and dense soil coverage to prevent wind erosion (and thus dust emissions).

**Pasture and grazing management**

» Low emission animal housing systems (e.g. with the use of filters and scrubbers); AND
» Low-emission manure and slurry management (e.g. by good coverage of slurry pits, the use of drip hose booms or slurry injectors); AND
» Use of "engineered systems", such as a treatment plant with solid-liquid separation that reduces ammonia from manure.

**Fisheries and aquaculture**

» Switching to more efficient engines and motors (for boats, pumps, etc.); AND
» Low emission post-harvest and fish transformation buildings.

**Forestry**

» Application of the FAO voluntary guidelines for fire management best practices.

**Processing and marketing**

» All refrigeration equipment is properly maintained and no chlorofluorocarbon (CFC) or other ozone-depleting refrigerants are used; AND
» No open, uncontrolled incineration of wastes that can cause problematic emissions (such as certain polymers, dyes, etc.); AND
» Implementation of sound Good Agricultural and Manufacturing Practices; AND
» No use of methyl bromide in packaging and storage facilities; AND
» All road, railway and water vehicles for product transportation are properly maintained.

**Red score:**

» Uncontrolled or poorly managed waste incineration; OR
» Burning of crop residues; OR
» Uncovered storage of manure and slurry application without pressure control (e.g. splash plate); OR
» Use of substances controlled under the Montreal Protocol whose use should already have been phased out in this country (e.g. use of CFCs and/or other ozone-depleting refrigerants); OR
» Complete lack of filter equipment in facilities that produce pollutant emissions; OR
» Use of methyl-bromide in storage facilities or for soil fumigation; OR
» Open, uncontrolled incineration of wastes that can cause problematic emissions (such as certain polymers, dyes, etc.); OR
» Evidence of road, railway and water vehicles uncontrolled for air pollution (black smoke, odor and noise).

## Limitations

The efficacy and feasibility of air pollution abatement practices need to be determined for each specific situation. Technology provides more general options that must be assessed for potential pollutant swapping, such as the increased emission of one pollutant resulting from abating another.

## Sources of information

**Aneja, V. P., Schlesinger, W.H. and Emerisman, J. W.** 2009. Effects of Agriculture upon the Air Quality and Climate: Research, Policy and Regulation. *Environ. Sci. Technol., 43 : 4234-424.*

**European Environment Agency**. Air Pollution. Accessed on Sept. 2013.

**FAO**. 2006. *Fire Management Voluntary Guidelines: Principles and Strategic Actions.* Forestry Department. Fire Management Working paper 17/E.

**United Nations Economic Commission for Europe (UNECE).** 1999. *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone.*

**United Nations Environment Programme (UNEP).** 2000. *The Montreal Protocol on Substances that deplete the Ozone Layer.*

**United States Environmental Protection Agency (EPA).** 2009. *Air Quality Index, A Guide to Air Quality and Your Health.*

**World Health Organization.** 2011. Air Quality and Health. Media Centre. Fact sheet n. 313. (includes a link to the 2005 WHO Air quality guidelines).

INDICATOR NAME

# AMBIENT CONCENTRATION OF AIR POLLUTANTS (E 1.2.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME ATMOSPHERE (E 1)
SUB-THEME AIR QUALITY (E 1.2)

## Description

This indicator uses ambient levels of air pollutants as a proxy of air quality. Air pollution is measured through the concentrations of particulate matter, ozone, sulphur dioxide, nitrous oxides, volatile organic compounds, smoke and odors. Usually, national air pollution surveillance programmes provide detailed information on air pollutant concentrations from monitoring stations across regions. In most developed countries, online interactive maps allow obtaining detailed information on air pollutant concentrations in specific areas (e.g. Canada monitors fine particulate matter).

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes that produce potentially polluting gaseous emissions. Small-scale enterprises in less developed countries are probably less able to inquire about data on air pollution concentrations, thus they may omit this indicator. In such instances, it should be checked whether data from an existing air quality monitoring network can be used (and results attributed to the analyzed enterprise). Other operations, of which surrounding air quality is not monitored can opt out as well, except for large-scale and intensive operations. This indicator may be a hot spot for the post-harvest value chain. The main limitation is due to the lack of database and monitoring regional or national thresholds. Noise monitoring is a usual practice in many enterprises, in processing, packaging and storage and protection for employees used. Note that the thematic scope of this indicator is limited to ground-level air pollution and does not include stratospheric ozone.

## Unit of measurement

This indicator measures the percentage of days of the year when ambient concentration thresholds of relevant pollutants have been exceeded in the surroundings of and due to the activities of the enterprise.

## How to measure

- First, each production site of the enterprise where pollutant emissions can potentially occur needs to be screened for the types of pollutants it can emit.
- Then, all concerned sites close to air quality monitoring stations need to be examined (unless the enterprise does its own measurements). If there is no monitoring station in sufficient proximity, the operation may chose not to apply this default indicator. This exemption, however, does not apply to large-scale and intensive operations, which are required to assess themselves (using established analytical methodologies and seeking expert opinion). In most countries, such operations will normally have to monitor and report on the pollutant load of their emissions anyway.

» When air quality monitoring data are available, the ambient concentrations and number of days where the threshold of the relevant pollutants is exceeded (see above) should be investigated.

If own measurements are used and excess values are found as compared to national threshold values, the percentage of days that were tested needs to be considered.

Except for the Dark Green and Red scores, the score needs to be adapted if air pollution is the result of external factors, such as meteorological inversion. In such cases, high excess values can be justified by the location or weather conditions; this justification needs to be provided in the final SAFA Report.

## Rating

**Dark Green score**

When any relevant air pollutants that have occurred in the surroundings of the enterprise during the analyzed time-frame do not exceed regulatory ambient levels.

**Red score**

When applicable legal threshold values for ambient air pollutant concentrations were repeatedly exceeded inside or next to the enterprise's operations, with the air pollution being attributable to the enterprise.

## Limitations

Ambient concentrations of air pollutants are influenced by many factors, such as local emission sources and weather conditions, in particular the direction and speed of wind. Thus, an operation may not emit any air pollutants and yet find itself in an area with high pollution due to wind conditions and location (e.g. next to highways). Hence, the attribution of air pollution to an enterprise can be challenging.

## Sources of information

**European Environment Agency**. Air Pollution. Accessed on Sept. 2013.

**Government of Canada.** 2013. Interactive Indicator Maps. Ambient levels of fine particulate matter at Monitoring Stations, Canada, 2010. Environment Canada.

**United Nations Economic Commission for Europe (UNECE)**. 1999. *The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone.*

**United States Environmental Protection Agency (EPA)**. 2009. *Air Quality Index, A Guide to Air Quality and Your Health.*

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INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# WATER CONSERVATION TARGET (E 2.1.1)

ENVIRONMENTAL INTEGRITY
WATER (E 2)
WATER WITHDRAWAL (E 2.1)

## Description

This indicator serves to check the presence of a written plan that sets a measurable and binding target for achieving a decrease in water consumption and thus, avoids that the enterprise contributes to problematic levels of water scarcity. Water conservation refers to any beneficial reduction in water loss, use or waste.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes. In some cases, water use has reached the minimum necessary because of good practices or scarcity and in this case, the enterprise has set a concrete target for monitoring water use within the enterprise. Enterprises that may opt out from this indicator include primary producers that do not irrigate or withdraw water for their production (e.g. marine and inland capture fisheries, mariculture, freshwater cage culture).

## Unit of measurement

This indicator serves to check whether the enterprise has set a concrete and binding target for reducing water consumption or water withdrawals by its operations during the analyzed time-frame. Water reduction targets can be expressed as percentage, total absolute amounts, or per unit of production.

## How to measure

Determine if the operation has a written and binding plan – available to all stakeholders - that includes a target for the reduction of water consumption with exact steps that outline how that target will be achieved within the expected time-frame.

## Rating

**Dark Green score:**
The enterprise has a written plan, available to all stakeholders, with water conservation targets and steps have been implemented towards achieving these targets.

**Yellow score:**

» The enterprise has a plan with set targets for the reduction of water consumption, but no steps have been made towards achieving the targets; OR

» The enterprise has targets and has implemented steps towards water conservation, however this has not been put into writing; OR

» The enterprise has a plan with set targets for the reduction of water consumption, and steps have been made towards achieving the targets, however the plan is not available for all of the stakeholders.

**Red score:**
is given if none of the above requirements have been as yet met.

## Limitations

One of the key element of this (and other target-based) indicator is whether steps have been already made towards meeting the target. If a SAFA has been already carried out in previous year(s), consequent steps have to be evaluated with this indicator since the last assessment, in order to receive the best (dark green) score. Thus, an enterprise should not be rewarded even if a written plan with targets exists, yet steps are not being made, between two SAFA assessments, towards meeting those targets.

## Sources of information

**FAO**. Water. Natural Resources Management and Development Department. Accessed on Sept. 2013.

**United States Environmental Protection Agency (EPA).** How to Conserve Water and Use It Effectively. *In Water Polluted Runoff*. Accessed on Sept. 2013.

**Vickers, A.** 2001. *Handbook of Water Use and Conservation: Homes, Landscapes, Businesses, Industries, Farms*. WaterPlow Press.

**World Overview of Conservation Approaches and Technologies (WOCAT).** Webpage hosted by the Bern University. Accessed on Sept. 2013.

INDICATOR NAME

# WATER CONSERVATION PRACTICES (E 2.1.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME WATER (E 2)
SUB-THEME WATER WITHDRAWAL (E 2.1)

## Description

This indicator refers to all practices that aim at saving water in agriculture and fisheries-based food chains. Water conservation refers to any beneficial reduction of water loss, use or waste. Many practices can potentially conserve water, such as maximizing the efficiency of irrigation systems, rainwater harvesting, cultivation of water-efficient crops, use of less water-demanding processing technologies, etc.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes that use freshwater in their operations.

## Unit of measurement

This indicator intends to capture the activities and practices implemented by the enterprise that have effectively helped conserve water during the analyzed time-frame.

## How to measure

» Determine which of the below examples of "best practices" whose implementation has been shown to support water conservation, are implemented in the enterprise, if applicable and feasible. The assessor may enlist additional practices with high water conservation potential.
» Next, the assessor should decide in which of the "unacceptable practices" (listed below) the operation has been engaged. The score for this indicator should be "Red" if any of the enlisted "worst practices" is used, regardless of also having implemented some of the "best practices".

## Rating

**Dark Green score:**
**Crop and livestock production**

» Mulching and tillage to break pore continuity and reduce water evaporation from soils; AND
» Water harvesting; AND
» Minimization of irrigation water, such as by use of efficient irrigation technologies; AND
» Use of soil moisture and rainfall sensors to optimize irrigation schedules; AND
» Breeding and selection of crop species and varieties and of animal species and breeds that are adapted to local climate and make efficient use of water; AND
» Enhancement of water use efficiency by preventing losses of produce due to pests, diseases or lack of nutrients; AND
» Wastewater recycling in stables; AND
» Reducing water use for the cleaning of stables and milk parlors by optimizing water pressure and hose diameter.

**Fisheries and aquaculture**

» Maintaining/installing/upgrading accurate mechanisms to control flows throughout the aquaculture system; AND
» Minimizing water use for washing aquaculture facilities; AND
» Reuse of water in aquaculture operations, such as to irrigate surrounding fields, to refill tanks post-treatment; AND
» Implementation of re-circulating aquaculture systems; AND
» Reduction of pond water losses, such as minimization of seepage through lining.

**Forestry**

» Breeding and selection of water-efficient tree species and varieties; AND
» Water-saving measures in tree nurseries.

**Processing and marketing**

» Implementation of good manufacturing practices; AND
» Efficient water demanding technologies in processing are in place; AND
» Waste water recycling.

**Red score:**

» Inefficient or not regularly maintained irrigation systems; OR
» Monoculture cultivation of water-demanding crops/trees in water-scarce areas; OR
» Inefficient use of water for handling and processing purposes.

## Limitations

The efficacy and appropriateness of water-saving practices depends on local climate and water availability. In certain situations, saving water may even prove counter-productive, as sewage systems are not properly flushed anymore, one consequence being noxious odors. Hence, it has to be determined locally what practices are indeed beneficial.

## Sources of information

**Boyd, C.E. and Gross, A.** 2000. Water Use and Conservation for Inland Aquaculture Ponds. *Fisheries Management and Ecology*, 7(1-2): 55-63.

**FAO**. Water. Natural Resources Management and Development Department. Accessed on Sept. 2013.

**United States Environmental Protection Agency.** How to Conserve Water and Use It Effectively. Water: Polluted Runoff. Accessed on Sept. 2013.

**World Overview of Conservation Approaches and Technologies (WOCAT)**. Wocat Webpage. Accessed on Sept. 2013.

INDICATOR NAME

# GROUND AND SURFACE WATER WITHDRAWALS (E 2.1.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME WATER (E 2)
SUB-THEME WATER WITHDRAWAL (E 2.1)

## Description

Ground and surface water withdrawals aim to put the freshwater withdrawals for the enterprise in relation with the regionally available freshwater resources, that the annual rainfall, annual groundwater recharge and water carried into the region by allochthonous rivers.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes that directly use groundwater or surface water. Although marine and inland capture fisheries, and mariculture operations may opt out, this indicator applies to freshwater aquaculture (e.g. pond culture) and to the post-harvest transformation of fish products.

## Unit of measurement

This indicator measures the share of the annual withdrawals of ground and surface water as a percentage of total renewable water resources available over the same period of time.

## How to measure

» Determine water availability or the level of water stress/water scarcity for all regional watersheds from which the enterprise withdraws freshwater. Ideally, the amount of water that can be withdrawn from the area of the watershed without damage to ecosystems and to other water users should be quantified.
» Quantify the annual water withdrawals for all operations in each concerned regional watershed.
» Quantify (by dividing by annual water availability) and rate the contribution of operations to increasing water stress in the respective regional watershed. This will require an assessment of how much of the totally available water can be withdrawn for the operation. For this assessment, ancillary information, such as levels of water scarcity experienced by ecosystems and water users, should be used.

## Rating

**Dark Green score:**
The enterprise does not contribute to water supply problems of ecosystems, or human water users, at any of the sites where it operates.

**Red score:**
The enterprise overuses water resources, thus putting ecosystems and the existence of human water users at risk.

## Limitations

The reliable quantification of water availability in a certain region can be challenging and almost impossible where no reliable public sources exist. Weighting water withdrawals (e.g. according to opportunity cost) and putting them in relation with water availability is particularly difficult and should be done with the support of experts. The biggest difficulty will arguably be the assigning of water quantities to users in the watershed, as this can be based on different criteria, (e.g. area owned, monetary value of production, importance of products for human subsistence).

## Sources of information

**Brown, A. and Matlock, M.D.** 2011. *A Review of Water Scarcity Indices and Methodologies.* White Paper 106. The Sustainability Consortium (TSC).

**FAO.** AQUASTAT. Information Systems on Water and Agriculture. Accessed on Sept 2013.

**International Standards Organization.** *ISO/DIS 14046: Environmental Management - Water Footprints - Principles, Requirements and Guidelines.* Accessed on Sept. 2013

**Pfister S., Koehler, A. and Weg, S.** 2009. Google Earth Layer Showing Water Stress Levels. In Assessing the environment impacts of Freshwater consumption in LCA. *Environmental Science and Technology* 43: 4098-4104.

**World Business Council for Sustainable Development.** Global Water Tool. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# CLEAN WATER TARGET (E 2.2.1)

ENVIRONMENTAL INTEGRITY
WATER (E 2)
WATER QUALITY (E 2.2)

## Description

This indicator refers to the existence of a written plan that sets a measurable and binding goal in achieving the highest quality of water released by the operation compared with baseline levels (as identified by the operation). Clean water in agriculture and fisheries-based food chains essentially refers to preventing the discharge of pollutants and sediments to surface and/or groundwater by poor agricultural, aquaculture and manufacturing practices.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes. The indicator applies to both land and water based activities, such as freshwater and marine aquaculture (including post-harvest transformation activities); marine and inland capture fisheries are however less concerned by this indicator and may opt-out.

## Unit of measurement

This indicator asks whether the enterprise has set a clean water target in the analyzed enterprise's operations during the analyzed time-frame. The target could be expressed in percentage, total absolute amounts, or per unit of produce.

## How to measure

Determine whether the enterprise has a written and binding plan - available to all stakeholders - that includes concrete targets for the reduction of the discharge of water pollutants, with exact steps that outline how these targets can be achieved within the expected time-frame.

## Rating

**Dark Green score:**
The enterprise has a written plan, available to all stakeholders, with clean water targets and steps have been implemented towards achieving those targets.

**Yellow score:**

» The enterprise has a plan with set targets for the reduction of water pollution, but no steps have been yet made towards achieving these targets; OR

» The enterprise has target and has implemented steps towards preventing water pollution, however this has not been put into writing; OR

» The enterprise has a plan with set targets for the reduction of water pollution, and steps have been taken towards achieving these targets, however the plan is not publicly available.

**Red score:**
is given if none of the above requirements have yet been met.

## Limitations

Water quality is determined by numerous chemical and biological parameters. For technical and financial reasons, only a selection of these can usually be analyzed. Therefore, monitoring the efficacy of the implemented measures can be challenging.

## Sources of information

**FAO**. Water Quality. Rome. Accessed on Sept. 2013.

**Ministry of Environment, Lands and Parks, Province of British Columbia**. 1998. Guidelines for Interpreting Water quality Data. Version 1.0. Ministry of Environment, Lands and Parks, *LandData BC, Geographic Data BC for the Land Use Task Force*. Resource Inventory Committee.

**UK Marine SACs Project**. Water Quality Guidelines and Standards in the Marine Environment. UK Marine Special Areas of Conservation. Accessed on Sept. 2013.

**United Nations Children's Fund**. 2008. *UNICEF Handbook on Water Quality*.

**United Nations Environment Programme**. Water Quality Outlook. *UNEP GEMS/Water Programme*. Accessed on Sept. 2013.

**United States Environmental Protection Agency.** Monitoring and Assessing Water Quality – Volunteer Monitoring. *Water: Monitoring and Assessment*. Accessed on Sept. 2013.

**World Health Organization**. 2012. *Animal Waste, Water Quality and Human Health*. Edited by Dufour A., Bartram, J., Bos, R. and Gannon, V. IWA publishing, London.

**World Health Organization.** Guidelines for Drinking-water Quality. *Water Sanitation Health*. Accessed on Sept 2013.

# WATER POLLUTION PREVENTION PRACTICES (E 2.2.2)

INDICATOR NAME
DIMENSION ENVIRONMENTAL INTEGRITY
THEME WATER (E 2)
SUB-THEME WATER QUALITY (E 2.2)

## Description

This indicator refers to all practices that aim at preventing and reducing water pollution from agriculture and fisheries-based food chains. The indicator concerns the pollution of both freshwater and saltwater. Activities that can cause water pollution include: poorly located or managed animal feeding and aquaculture operations of both freshwater and saltwater, overgrazing, practices that cause soil erosion by water and improper, excessive or poor selection of pesticides, irrigation water and improper application of fertilizer, and practices that result in deforestation or forest degradation in sensitive watersheds. Many practices can prevent and/or reduce water pollution, for example management practices that control the volume and flow rate of runoff water, soil conservation practices, the proper storage and application of manure, slurry and silage, and appropriate facility wastewater and runoff management.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes that produce wastewater or otherwise impact on water quality (e.g. through soil erosion, or animals entering open water, water discharge from processing/washing/freezing fresh produce). It also applies to marine and land-based aquaculture production (including post-harvest processing). Capture fisheries are less concerned by this indicator, unless some polluting practices are employed (e.g. cyanide fishing).

## Unit of measurement

This indicator intends to capture the type of activities and practices implemented by the enterprise that effectively prevented or reduced water pollution during the analyzed time-frame.

## How to measure

- Delineate those sites and areas where a risk of water pollution by the enterprise's operations exists.
- For these areas, determine which of the below examples of "best practices" whose implementation has been shown to prevent or reduce water pollution, have been implemented in the enterprise, if applicable and feasible. The enterprise may enlist additional practices with high pollution prevention potential.
- Next, check whether any of the "unacceptable practices" listed below are in place in the enterprise. The score for this indicator should be "Red" if any of the enlisted practices is used, regardless of also having implemented some of the "best practices".

## Rating

**Dark Green score:**

**Cropland management**

» Use of cover crops, and avoidance of bare fallows; AND
» Land use and land cover change to more complex and diverse systems with better soil coverage, such as agroforestry, organic management, mixed crop-livestock systems, mixed rice-fish systems, intercropping, perennials, polycultures, forest gardens, etc; AND
» Soil and water conservation measures, such as soil or stone bunds, drainage measures, furrow dikes, swales, raised beds; AND
» Adoption of no-spray buffer zones; AND
» Conservation tillage practices; AND
» Non-use of highly hazardous chemicals, Persistent Organic Pollutants, and those having potential adverse effects on aquatic life, including copper sulfite, glyhposate, atrazine, 2,4-D, carbaryl, malathion, etc; AND
» Protecting hedgerows, water courses, wells, boreholes and springs by not cultivating adjacent to them or leaving at least 3 meters of distance with buffer strips.

**Grazing and pasture management**

» Keeping livestock out of sensitive/degraded areas, providing alternative sources of water and shade and promoting re-vegetation of ranges, pastures and riparian zones; AND
» Use of mobile livestock dipping facilities with a sealed drainage and collection system.

**Fisheries and aquaculture**

» Use of non-chemical methods of managing aquatic weeds; AND
» Recirculation closed systems or sedimentation ponds to treat effluents are in place in aquaculture systems; AND
» Sitting of aquaculture cages in high-water exchange areas (flushing of nutrients).

**Forestry**

» Buffer zones that prohibit logging, soil disturbance or the use of pesticides or fertilizers near streams or rivers; AND
» Reforestation of abandoned farm land (e.g. from shifting cultivation); AND
» Comprehensive watershed management planning.

**Processing and marketing**

» Implementation of sound good agricultural and manufacturing practices; AND
» Separated or recovered wastewater; AND
» Wastewater treatment, such as centrifugation, evaporation, filtration, flotation, gravity separation, membrane systems, conversion of constituents, biological treatment, etc.

**Red score:**

» Application of pesticides that are not allowed by law; OR
» Absence of any buffer zones to protect surface water, violation of water protection areas.

## Limitations

The efficacy and appropriateness of practices to prevent water pollution may be difficult to rate but in the post-harvest chain, practices may be feasible.

## Sources of information

**FAO**. Highly Hazardous Pesticides. Crop Production Division. Accessed on Sept. 2013.

**FAO.** 1992. Wastewater Quality Guidelines for Agricultural Use. *In Wastewater Treatment And Use In Agriculture*. Natural Resources Management and Environment Department.

**FAO.** 1992. Wastewater Treatment and Use in Agriculture. *FAO Irrigation and Drainage Paper 47*. Natural Resources Department.

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**FAO**. Water Quality for Irrigation. *Water*. Accessed on Sept 2013.

**FAO**. Water Quality. *Water* . FAO Natural Resources Department Accessed on Sept 2013.

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**World Health Organization**. 2012. *Animal Waste, Water Quality and Human Health*. Edited by Dufour A., Bartram, J., Bos, R. and Gannon, V. IWA publishing, London.

INDICATOR NAME

# CONCENTRATION OF WATER POLLUTANTS (E 2.2.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME WATER (E 2)
SUB-THEME WATER QUALITY (E 2.2)

## Description

Water Pollutants are substances discharged into water bodies without adequate treatment that compromise the health of humans, animals and ecosystems. Most water pollution comes from nonpoint sources (for instance, through sedimentation), whereas point source water pollution occurs where wastewater is discharged. Government agencies and research organizations have published standardized analytical test methods to test concentrations of such pollutants.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes. Small-scale enterprises are probably less able to test the concentrations of water pollutants and may omit this indicator. In such cases, the availability of information from water quality monitoring conducted by public agencies should be checked.

## Unit of measurement

This indicator measures the percentage of days of the year when relevant water quality thresholds have been exceeded in water bodies (including ground and surface water, coastal and marine water) due to effluents from the operations.

## How to measure

While the details of sampling, testing and analysis are beyond the scope of these Guidelines, the following is a general description of the significance of water quality tests usually made. Testing procedures and parameters may be grouped into physical, chemical, bacteriological and microscopic categories:

- Physical tests indicate properties such as water conductivity, density and odour.
- Chemical tests determine the amounts of mineral and organic substances that affect water quality. Examples of relevant parameters: biochemical oxygen demand (BOD), chemical oxygen demand (COD), dissolved oxygen, pH, nitrate, orthophosphate, pesticide residues and metabolites, polycyclic aromatic hydrocarbons (PAHs).
- Bacteriological tests show the presence of bacteria (e.g. fecal pollution).
- Bioassays are a means to determine the quality of water as a habitat for organisms such as daphnia and caddis-fly larvae.

The testing should be carried out at least twice a year, and after any event that could have affected the safety of the water (e.g. flood, sewage backup).

## Rating

**Dark Green score**
When the critical thresholds have not been exceeded in water bodies affected by the operation.

**Red score**
When at least one critical threshold has been exceeded by the enterprise.

## Limitations

The levels of water pollutants are influenced by many factors such as local emissions sources, weather conditions, etc. Thus, an operation may not even emit any water pollutants, yet finds itself in an area with high pollution because of its location (e.g. next to an intensive livestock farm). The rating (except for the Dark Green and Red score) could be somewhat altered if water pollution is the result of external factors. In such cases, high exceedances can be justified by the location (e.g. downstream) of the operations and this justification needs to be provided in the final SAFA Report.

## Sources of information

**FAO**. Water Quality for Irrigation. *In Pressurized Irrigation Techniques. Chapter. 7.* Accessed on Sept. 2013.

**FAO**. Water Quality Monitoring, Standards And Treatment. *In Fishery Harbour Manual on the Prevention of Pollution. Chapter. 2.* Accessed on Sept. 2013.

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**World Health Organization.** Guidelines for Drinking-Water Quality. *Water Sanitation Health.* Accessed on Sept 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# WASTEWATER QUALITY (E 2.2.4)

ENVIRONMENTAL INTEGRITY
WATER (E 2)
WATER QUALITY (E 2.2)

## Description

This indicator refers to the suitability of wastewater for disposal or re-use. Recommended water testing methodologies, parameters and legal thresholds vary among countries, as well as with the intended use or discharge location. For instance, the characteristics of wastewater from food processing factories can be characterized by high biochemical oxygen demand (BOD), suspended solids (SS) and high oil concentrations, as well as smells from acidification.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for all enterprises that discharge wastewater during the analyzed time-frame. Small-scale enterprises may opt to omit this indicator because of lack of reliable data.

## Unit of measurement

This indicator measures the share of wastewater with a good water quality (e.g. concentrations of faecal coliform, heavy metals, BOD and COD) as a percentage of the total wastewater of operations. A good water quality is given if the quantity and quality of discharged wastewater cause no harm to human, plant, animal and ecosystem health. This means that wastewater treatment methods have to be adapted to the quantities and pollutant charge, as well as the intended method of discharge of the treated water.

## How to measure

While the details of sampling, testing and analysis are beyond the scope of these Guidelines, the following is a general description of the significance of wastewater quality tests usually made. Testing procedures and parameters may be grouped into physical, chemical, bacteriological and microscopic categories:

- Physical tests indicate properties such as water conductivity, density and odour.
- Chemical tests determine the amounts of mineral and organic substances that affect water quality. Examples of relevant parameters: biochemical oxygen demand (BOD), chemical oxygen demand (COD), dissolved oxygen, pH, nitrate, orthophosphate, pesticide residues and metabolites, polycyclic aromatic hydrocarbons (PAHs).
- Bacteriological tests show the presence of bacteria (e.g. fecal pollution).
- Bioassays are a means to determine the quality of water as a habitat for organisms such as Daphnia and caddis-fly larvae.

The testing should be carried out at least twice a year, and after any event that could have affected the safety of the water (flood, sewage backup).

## Rating

**Dark Green score:**
All wastewater discharged and reused by the enterprise is of a quality that will not cause harm to the health of humans, plants, animals and ecosystems.

**Red score:**
Wastewater with pollutant concentrations that are dangerous to the health of humans, plants, animals and ecosystems, and/or that exceed applicable legal thresholds (or, in the absence of such thresholds, WHO recommendations) is discharged repeatedly and in quantities that exceed the diluting capacity of the concerned surface waters.

## Limitations

For financial and technical reasons, it may not be possible to comprehensively analyze wastewater quality. In such cases, a prior risk analysis should be done to identify potential problem substances. The chemical analysis would then focus on these substances. Where non-point sources of water pollution exist, analyzing the quality of this water may not be possible. In such cases, the quality of the receiving water bodies should be monitored. The challenge in those instances is to attribute pollutions to the right sources.

## Sources of information

**FAO**. 1992. Wastewater Quality Guideline for Agricultural Use. *In Wastewater Treatment and Use in Agriculture*. Natural Resources Management and Environment Department.

**FAO**. Water Quality for Irrigation. *Pressurized Irrigation Techniques.*

**FAO**. Water Quality Monitoring, Standards And Treatment. *Fishery Harbour Manual on the Prevention of Pollution - Bay of Bengal Programme.*

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**Ministry of the Environment, Government of Japan.** 2003**.** Examples of Food Processing Wastewater Treatment. *Technology Transfer Manual of Industrial Wastewater Treatment.* Part 3. Overseas Environmental Cooperation Center, Japan.

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**World Health Organization.** Guidelines for Drinking-Water Quality. *Water Sanitation Health.* Accessed on Sept 2013.

INDICATOR NAME **SOIL IMPROVEMENT PRACTICES (E 3.1.1)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **LAND (E 3)**
SUB-THEME **SOIL QUALITY (E 3.1)**

## Description

This indicator refers to all practices that aim at improving the physical, chemical and biological properties of the soils used by an enterprise. Depending on the conditions of soils and on the local climatic, terrain and geological characteristics, numerous measures can be taken to improve soil quality, such as: controlled application of organic and mineral fertilizers to improve nutrient deficiencies (e.g. with compost, animal manure, NPK, DAP fertilizers), liming to increase soil pH, phyto- or chemical remediation to reduce salinity, compost application to enhance soil organic matter content and stimulate biological activity, or sub-soiling to remove soil compaction.

## Relevance to enterprise type and supply chain levels

The indicator is relevant for all enterprises that directly use soils. Thus, marine fisheries are not involved.

## Unit of measurement

The indicator focuses on the activities and practices implemented by the enterprise to effectively increase the quality and fertility of the soils it uses.

## How to measure

- Determine the total area on which soils are used by the operation.
- List all activities and practices that the operation has implemented and that have a recognized potential to contribute to enhancing soil quality under the given climatic and pedological conditions, or to preserve already productive and healthy soils. Examples of best practices include:
- application of organic fertilizers (manure, slurry, compost) to enhance soil organic matter content, improve crop nutrient supply and stimulate soil life;
- wise application of mineral fertilizers to improve soil fertility;
- liming to increase soil pH if acidity is present;
- improving soil drainage, phyto-remediation and/or chemical remediation (e.g. using gypsum) to reduce soil salinity and decrease soil pH;
- better drainage and/or sub-soiling to increase nutrient availability and water retention;
- implementation of a diverse crop rotation, including the introduction of fodder and cover crops, improved fallow techniques, integration of agroforestry or aquaculture, intercropping, etc. to enhance soil structure, soil organic matter content and soil biological activity and soil health in general.
- Determine the share of the total area used where at least one effective measure is practiced.

## Rating

**Dark Green score:**
All problematic aspects for soil quality are tackled by effective measures on all areas concerned.

**Red score:**
Measures for enhancing or conserving soil quality (where it is already very high) have been implemented on less than 20% of the used area.

## Limitations

Consensus on the efficacy and trade-offs of soil-enhancing practices does not yet exist for all practices. In some instances, measures that remove one problem can aggravate another problem.

## Sources of information

**FAO and International Institute for Applied Systems Analysis.** 2012. Harmonized World Soil Database. V 1.2.

**FAO.** Soils and Maps. *Land Resources*. Accessed on Sept. 2013.

**FAO.** Visual Soil Assessment Field Guides. Accessed on Sept. 2013.

**International Union of Soil Sciences (IUSS).** Accessed on Sept. 2013.

**Soil Science Society of America.** Soils Sustain Life. Accessed on Sept. 2013.

**Soil Quality Pty Ltd (Australian Government).** Accessed on Sept. 2013.

**UNESCO and IUSS.** ISRIC World Soil Information. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# SOIL PHYSICAL STRUCTURE (E 3.1.2)

ENVIRONMENTAL INTEGRITY
LAND (E 3)
SOIL QUALITY (E 3.1)

## Description

The physical soil properties, such as the soil texture, porosity and structure, reveal the grade of nutrient and water holding capacity of the soils which are important aspects for its health and productivity. It strongly influences volatilization from gaseous soil compounds (including GHG emissions as nitrous oxide and carbon dioxide), water balance (also at the regional level), soil packing and root penetration, uptake of soil nutrients by plants and good soil aeration; these are preconditions for a thriving soil biota, the storage of organic matter and soil carbon.

## Relevance to enterprise type and supply chain levels

The indicator is relevant for all enterprises that use soils in ways that can modify soil physical structure, through processes of compaction, aggregate stabilization or destabilization. This definition will normally include crop and livestock production, forestry and some aquaculture systems (e.g. pond culture). However, where soils are used to store heavy items or park heavy vehicles, the indicator is relevant as well.

## Unit of measurement

The calculation focuses on the share of the utilized land where the conditions of soil physical structure are good with respect to the local climate and bedrock.

## How to measure

» Determine the total area on which soils are used by the operation.
» Through visual inspection of soil surface and/or crop (root) growth using the spade method, in combination with quantitative measurements (e.g. with a penetrometer), delineate those areas where soil compaction or an instable soil structure limits plant growth and/or causes water-logging. If possible, ask experienced local land users for signs of bad soil structure observed in the past. Consult the FAO Visual Soil Assessment Field Guides for a detailed methodology.
» Calculate the percentage of areas with good physical structure in the total area used by the enterprise's operation.

## Rating

**Dark Green** score:
Soil physical structure is in excellent condition on all land used by the enterprise, with no signs of soil compaction of structural degradation.

**Red score:**
On a substantial (e.g. 10% of the total area) share of land, soil physical structure has been damaged to an extent that allows no more growth of productive vegetation (specialist plant species with low biomass not included).

## Limitations

It can be difficult to determine the share by which the enterprise's activities have contributed to the current state of soil physical structure. Bedrock, climate and the history of land use all can strongly affect this indicator's outcome. Furthermore, capturing the full range of conditions of soil physical structure in a heterogeneous landscape can be challenging.

## Sources of information

**Aarhus University, Agroscope and Bern University of Applied Sciences**. Terranimo, Terramechanical Model for the Simulation of Stress under Agricultural Machinery (test version).

**Diserens, E. and Spiess, E.** 2005. *Tyres / Tracks and Soil Compaction (TASC).* Agroscope Reckenholz-Tänikon ART . Swiss Federal Administration.

**European Commission**. Soil Data and Information Systems. Joint Research Centre of the European Union, Soil. Accessed on Sept. 2013.

**FAO and International Institute for Applied Systems Analysis**. 2012. *Harmonized World Soil Database*. V 1.2.

**FAO**. Soils and Maps. *Land Resources*. Accessed on Sept. 2013.

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**Soil Quality Pty Ltd (Australian Government)**. Soil Quality Fact Sheets. Accessed on Sept. 2013.

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**UNESCO and IUSS**. ISRIC World Soil Information. Accessed on Sept. 2013.ì

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# SOIL CHEMICAL QUALITY (E 3.1.3)

ENVIRONMENTAL INTEGRITY
LAND (E 3)
SOIL QUALITY (E 3.1)

## Description

The chemical quality of soils determines their capacity to deliver various functions that are essential for vegetation growth, nutrient cycling and other ecosystem functions. It is a complex phenomenon that can be approached through a multitude of parameters, including pH value, electrical conductivity, cation exchange capacity, base saturation and the contents (total, dissolved, plant-available, etc.) of various chemical elements and molecules. The latter are often segregated into macronutrients, such as nitrogen, phosphorus and potassium, micronutrients and noxious substances.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for all enterprises that use soils in ways that can modify soil chemical health, through processes of fertilization, irrigation, liming, crop rotation, monocropping and the application of chemical substances in general. This definition will normally include crop and livestock production, forestry and some aquaculture systems (e.g. pond culture). However, where any chemicals are applied to soils (e.g. for disposal), the indicator will be relevant as well.

## Unit of measurement

This indicator quantifies and rates the share of the utilized land where the chemical quality of soils is high with respect to the parent material and local climate.

## How to measure

» Determine the total area on which soils are used by the operation.
» Through visual inspection of plant growth in combination with soil sampling and analysis, delineate those areas where soil pH is too high (pH >8.5) or too low (pH <4.5), salinity is too high, chemical pollution (with heavy metals such as Cd, Cu, Ni, or organic compounds such as PCBs) or imbalances of nutrient supply (excess or deficiency) limit plant growth. If possible, ask experienced local land users for signs (e.g. imbalances of plant nutrient supply). Check the FAO Visual Soil Assessment Field Guides for a detailed methodology. Note that very useful colour guides to crop nutrient deficiencies exist for many regions in the world. Soil sampling for laboratorial test should take into consideration soil pH, available P, Na, Mg, exchangeable Ca, Mg and Al to estimate Total Acidity, Cation Exchange Capacity (CEC) and Base Saturation.
» Calculate the percentage of areas with high chemical quality in the total area used by the enterprise's operation.

## Rating

**Dark Green score:**
Soil chemical quality is in excellent condition on all land used by the enterprise, with no signs of chemical soil pollution.

**Red score:**
On a substantial (e.g. 10% of the total area) share of land, soil chemical quality has been damaged to an extent that allows no more growth of productive vegetation (specialist plant species with low biomass not included).

## Limitations

Soil chemical quality is the product of numerous interacting parameters, including macro- and micronutrient contents, soil pH, exchangeable cations and anions, heavy metals, organic compounds, etc. It can therefore not be captured completely. It may also be difficult to distinguish between inherent (reflects the influence of parent material, climate and the history of land use) and dynamic (reflects management decisions of current or past land uses) soil chemical quality. Furthermore, capturing the full range of conditions of soil chemical quality in a heterogeneous landscape and over time can be challenging.

## Sources of information

**B.K. Gugino, B.K. 2009.**.2009. *Cornell Soil Health Assessment Training Manual* . Department of Horticulture, College of Agriculture and Life Sciences, Cornell University.

**FAO and International Institute for Applied Systems Analysis**. 2012. *Harmonized World Soil Database*. V 1.2.

**FAO**. Soils and Maps. *Land Resources*. Accessed on Sept. 2013.

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**International Union of Soil Sciences (IUSS).** Accessed on Sept. 2013.

**Soil Science Society of America**. Soils Sustain Life. Accessed on Sept. 2013.

**UNESCO and IUSS**. ISRIC World Soil Information. Accessed on Sept. 2013.

INDICATOR NAME **SOIL BIOLOGICAL QUALITY (E 3.1.4)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **LAND (E 3)**
SUB-THEME **SOIL QUALITY (E 3.1)**

## Description

This indicator refers to the macro- and micro-organisms present in soils. Soil organisms provide a multitude of benefits for the soils and ecosystem including breakdown of organic matter leading to nutrient and carbon release, improving soil structure and water holding capacity, providing a sink for GHG emissions and regulating pests among others. Soil biota activity strongly depends on soil organic matter content, soil physical structure and soil chemical quality. The interactions of all these factors determine soil fertility and ecosystem functioning.

## Relevance to enterprise type and supply chain levels

This indicator is relevant to all enterprises that use soils in ways that can modify soil biological health. This definition will normally include crop and livestock production, forestry and some aquaculture systems (e.g. pond culture). However, the indicator should be applied to any area where the living conditions of soil biota are affected by the operation.

## Unit of measurement

This indicator quantifies and rates the share of the utilized land where the biological quality of soils is high with respect to the local climate and conditions of parent material.

## How to measure

» Determine the total area on which soils are used by the operation.
» Through soil sampling and analysis, determine the values of feasible soil biological quality parameters on the land used by the operation. Established metrics include the abundances of certain taxa (e.g. earthworms, ants, termites), the activity of micro-organisms or soil biota as a whole (e.g. soil respiration) and the presence of metabolic substances (e.g. ergosterol, enzymes such as phosphatas, urease and dehydrogenase). Thresholds for good soil biological quality partly need to be established considering local chemical and climatic conditions. For sampling instructions, see e.g. the FAO Field Guides for Visual Soil Assessment.
» Calculate the percentage of areas with high biological quality in the total area used by the enterprise.

## Rating

**Dark Green score:**
Soil biological quality is in excellent condition on all land used by the enterprise, with no signs of biological soil degradation (i.e. a reduction of soil life).

**Red score:**
On a substantial (e.g. 10% of the total area) share of land, soil biological quality has been damaged such that soil functioning is not guaranteed anymore.

## Limitations

Soil biological quality is the product of numerous interacting parameters and can therefore not be completely captured. Also, capturing the full range of conditions of soil biological quality in a heterogeneous landscape and, in particular, over time can be challenging.

## Sources of information

**European Commission**. Soil Data and Information Systems. Joint Research Centre of the European Union. Accessed on Sept. 2013.

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**Mäder, P., Fliessbach, A., Dubois, D., Gunst, L., Fried, P. and Niggli, U**. 2002. Soil Fertility and Biodiversity in Organic Farming. *Science*. Vol. 296 no. 5573 pp. 1694-1697.

**Martinez-Salgado, M.M., Gutiérrez-Romero, V., Jannsens, M. and Ortega-Blu, R.** 2010. Biological Soil Quality Indicators: a Review. *Formatex*.

**Soil Quality Pty Ltd (Australian Government).** Soil Quality Fact Sheets. Accessed on Sept. 2013.

**Soil Science Society of America**. Soils Sustain Life. Accessed on Sept. 2013.

**UNESCO and IUSS**. ISRIC World Soil Information. Accessed on Sept. 2013.

INDICATOR NAME **SOIL ORGANIC MATTER (E 3.1.5)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **LAND (E 3)**
SUB-THEME **SOIL QUALITY (E 3.1)**

## Description

Soil Organic Matter is considered to be an indicator for soil quality and productivity influencing physical, chemical and biological properties of the soils. In particular, it contributes to soil aggregate stability, improving soil structure and hence soil aeration and infiltration leading to a higher water holding capacity in the soil. Content and quality of soil organic matter also affect the nutrient cycling and gas (including carbon dioxide) exchange in soils, and are thus related with soil life, soil fertility and the functioning of ecosystems.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for all enterprises that use soils in ways that can modify soil organic matter content. This definition will normally include arable crop production, livestock production, forestry and some aquaculture systems (e.g. pond culture).

## Unit of measurement

This indicator measures the share of the utilized land where content and qualities of soil organic matter are high in consideration of the local climate and bedrock. As a minimum, soil organic matter content (quantity) should be measured.

## How to measure

» Determine the total area on which soils are used by the operation.
» Through soil sampling and analysis, determine the values of feasible soil biological quality parameters on the land used by the enterprise. Established metrics include the abundances of certain taxa (e.g. earthworms, ants, termites), the activity of microorganisms or soil biota as a whole (e.g. soil respiration), and the presence of metabolic substances (e.g. ergosterol, enzymes such as phosphatas, urease and dehydrogenase). Thresholds for good soil biological quality partly need to be established considering local chemical and climatic conditions. For sampling instructions, see e.g. the FAO Field Guides for Visual Soil Assessment.
» Calculate the percentage of areas with high biological quality in the total area used by the enterprise.

## Rating

**Dark Green score:**
Soil organic matter content and quality are in excellent condition on all land used by the enterprise, with no signs of quantitative or qualitative losses.

**Red score:**
On a substantial (e.g. 10% of the total area) share of land, soil organic matter content is massively and rapidly reduced (e.g. by draining peat land or plowing up grassland).

## Limitations

Rating soil organic matter (SOM) content remains a challenge, since the optimum content will depend on how different soil functions are valued. For crop production, soils with very high SOM content may not be ideal because their structure can be instable. For carbon sequestration, a maximization of SOM content will be desirable. Similarly, the quality of SOM is not only difficult to determine for methodological and financial reasons, but it is also hard to rate, as there is a trade-off between the function of SOM as a carbon reservoir and its function as a stock of plant nutrients.

## Sources of information

**FAO and International Institute for Applied Systems Analysis.** 2012. *Harmonized World Soil Database*. V 1.2. Rome.

**FAO** (2005). The Importance of Soil Organic Matter. Rome.

**FAO**. Soils and Maps. *Land Resources*. Rome. Accessed on Sept. 2013.

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INDICATOR NAME

# LAND CONSERVATION AND REHABILITATION PLAN (E 3.2.1)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME LAND (E 3)
SUB-THEME LAND DEGRADATION (E 3.2)

## Description

This indicator is for checking the presence of a written plan that sets concrete, measurable and binding targets in preventing land degradation and, where necessary, rehabilitating degraded land. The target can for example be phrased as (total) acreage or (relative) share of used land where a certain level of soil quality and integrity is conserved or restored.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for all enterprises that directly involve the use of soils, including some land-based aquaculture operations, both freshwater and brackish.

## Unit of measurement

This indicator asks whether the enterprise has a written plan that describes the targets of conserving soil integrity and rehabilitating degraded soils, as well as the steps necessary to reach the targets.

## How to measure

» Determine the total area of land where a substantial or total loss of productive biological capacity has been caused by the operation. The loss of productive capacity can be approximated by assessing the degree of soil degradation – by water erosion, wind erosion, compaction, salinization, nutrient mining or chemical pollution – on the respective areas.
» Determine the total area of land where soil productive capacity was substantially enhanced or restored by measures that the enterprise implemented. Such measures include the phyto-remediation of polluted soils, the chemical remediation of saline soils and the recultivation of land used for surface mining.
» Calculate the balance of degraded and rehabilitated land.

## Rating

**Dark Green score:**
The enterprise has a written plan, available to all stakeholders, with land conservation and rehabilitation targets and steps have been implemented towards achieving these targets.

**Yellow score:**
» The enterprise has a plan with set targets for land conservation and rehabilitation, but no steps have been yet made towards achieving these targets; OR
» The enterprise has targets and has implemented steps for land conservation and rehabilitation, yet this has not been put into writing; OR
» The enterprise has a plan with set targets for land conservation and rehabilitation and steps have been taken for achieving these targets, yet the plan is not available to all stakeholders.

**Red score**
When none of the above requirements have yet been met.

## Limitations

The effectiveness of soil conservation and rehabilitation practices will strongly depend on local climatic and pedological conditions. Therefore, a careful assessment taking into account the local conditions will be needed to delineate those areas where measures really have a potential to be effective.

## Sources of information

**European Commission**. Soil Data and Information Systems. Joint Research Centre of the European Union. Accessed on Sept. 2013.

**FAO and International Institute for Applied Systems Analysis.** 2012. *Harmonized World Soil Database*. V 1.2.

**FAO.** Land Degradation Assessment in Dry Lands (LADA). *In Land Degradation Assessment. Land Resources*. Accessed on Sept. 2013. Rome.

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INDICATOR NAME

# LAND CONSERVATION AND REHABILITATION PRACTICES (E 3.2.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME LAND (E 3)
SUB-THEME LAND DEGRADATION (E 3.2)

## Description

This indicator refers to all practices that aim at preventing the loss of productive soils and at rehabilitating degraded soils.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for all enterprises that directly involve the use of soils, including some land-based aquaculture operations (both freshwater and brackish). If the performance indicator "Net loss/gain of productive land (E3.2.3)" has been calculated, it will not be necessary to apply this indicator in addition.

## Unit of measurement

This indicator focuses on the practices and activities that were implemented to effectively conserve soil and/or rehabilitation areas used for or by the enterprise.

## How to measure

- Determine the total area on which soils are used by the enterprise.
- List all activities and practices that the enterprise has implemented and that have a recognized potential to prevent soil degradation (in particular soil erosion) or to rehabilitate degraded soils. Note that many of these practices will also enhance soil quality (see "Soil improvement practices" (E 3.1.1). Examples of best practices include:
  - controlled application of organic fertilizer (manure, slurry, compost) to enhance soil organic matter content and thus, reduce surface runoff and the risk of water erosion, as well as increase soil stability and reduce the risk of soil compaction;
  - planting of living fences, such as windbreaks and enhancement of soil surface roughness (e.g. by mulching) to prevent wind erosion;
  - measures to increase soil coverage and thus, erosion protection, such as green manure application, cover crops, diverse crop rotations, intercropping and agroforestry;
  - soil and water conservation measures to reduce the risk of soil and water erosion, including terracing on slopes, contour farming, planting of protection strips, diversion ditches or cut-off drains, retention ditches or infiltration ditches, bunds and pits;
  - better drainage, phyto-remediation and/or chemical remediation (e.g. using gypsum) to reduce soil salinity and lower soil pH.
- Determine the share of the total area used where at least one effective measure is practiced.

## Rating

**Dark Green score:**
Conservation practices are in place in all sites threatened by soil degradation, and rehabilitation practices are in place in all previously degraded sites.

**Red score:**
Measures to conserve and rehabilitate soils are implemented on less than 20% of the affected area.

## Limitations

The effectiveness of soil conservation and rehabilitation practices will strongly depend on local climatic and pedological conditions. Therefore, a careful assessment, taking into account the local conditions, will be needed to delineate those areas where measures have a potential to be effective.

## Sources of information

**European Commission**. Soil Data and Information Systems. Joint Research Centre of the European Union. Accessed on Sept. 2013.

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INDICATOR NAME

# NET LOSS/GAIN OF PRODUCTIVE LAND (E 3.2.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME LAND (E 3)
SUB-THEME LAND DEGRADATION (E 3.2)

## Description

This indicator refers to the land balance of operations and thus, determines whether an enterprise causes a net loss of productive soils, or whether it contributes to net land rehabilitation.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for all enterprises that use land in ways that can enhance or degrade the productive (biological) capacity of soils, including some land-based aquaculture operations (both freshwater and brackish). This definition will normally include arable crop production, livestock production and forestry. It also covers all activities that cause the loss of productive soils due to building activities (soil sealing) and contamination.

## Unit of measurement

This indicator captures the balance between rehabilitated land and degraded land on the enterprise's sites.

## How to measure

» Determine the total area of land where a substantial or total loss of productive biological capacity has been caused by the operation. The loss of productive capacity can be timated by assessing the degree of soil degradation – by water erosion, wind erosion, compaction, salinization, nutrient mining or chemical pollution – on the respective areas. For descriptions of signs and processes of soil degradation, see resources mentioned below.
» Determine the total area of land where soil productive capacity was substantially enhanced or restored by measures that the enterprise implemented. Examples of such measures include the phyto-remediation of polluted soils, the chemical remediation of saline soils and the recultivation of land used for surface mining.
» Calculate the balance of degraded and rehabilitated land.

## Rating

**Dark Green score:**
The land balance is positive, that is more land was rehabilitated than was degraded.

**Red score:**
Soils are completely destroyed (usually to construct buildings) without any compensatory measure and without any meaningful usage of the removed soil material.

## Limitations

Care must be taken to apply a meaningful weighting to the levels of rehabilitation, as compared to degradation. To that purpose, a proxy, such as crop yields, may be required. Otherwise, there will be a risk of meaningless comparisons, such as 100 hectares of phyto-remediated saline land outweighing 100 hectares of land where soils were completely removed to build parking lots.

## Sources of information

**European Commission**. Soil data and information systems. Joint Research Centre of the European Union. Accessed on Sept. 2013.

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**Soil Quality Pty Ltd (Australian Government).** Soil quality fact sheets. Accessed on Sept. 2013.

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INDICATOR NAME

# LANDSCAPE/MARINE HABITAT CONSERVATION PLAN (E 4.1.1)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME ECOSYSTEM DIVERSITY (E 4.1)

## Description

A landscape or marine habitat conservation plan is a written plan whose aim is the conservation, protection and restoration of wildlife habitat. Such a plan requires concrete and binding goals, the identification of taxa and habitats that require particular attention, an implementation plan, and efficient monitoring programmes, as well as the identification of communication and collaboration opportunities with stakeholders.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of supply chains and is relevant for enterprises of all sizes whose operations have an impact on landscape structure or marine habitat. This definition explicitly includes areas adjacent to, and influenced by, the enterprise's operations.

## Unit of measurement

This indicator serves to check whether the enterprise has a plan in place that targets the conservation and/or rehabilitation of a diversity of habitats in or adjacent to the site(s) of its operations.

## How to measure

- Determine where the enterprise works in areas where habitats of endangered and/or threatened species, or habitats with high ecological value, have been identified. Relevant information will be available from public authorities in many countries.
- Check whether the enterprise has a written and binding plan - available to all stakeholders - with concrete targets and time-lines for habitat conservation and rehabilitation.
- Check whether the enterprise has taken any documented steps towards the implementation and fulfillment of the targets within the expected time-frame.

## Rating

**Dark Green score:**
The enterprise has a written habitat conservation plan, available to all stakeholders, with exact targets and time-frames and steps have been implemented towards achieving those targets. In the case of forestry enterprises for which a forest management plan exists, confirm that the existing plan adequately addresses wildlife habitat protection and that steps have been taken to implement the plan.

**Yellow score:**

» The enterprise has a plan with exact targets, but no steps have been taken towards achieving those; OR

» The enterprise has a plan and has taken steps towards its targets, however this has not been put into writing; OR

» The enterprise has a conservation plan and steps have been taken towards achieving its targets, however the plan is not available for all of the stakeholders.

**Red score:**

When none of the requirements above have been met.

## Limitations

The state of knowledge about existence, abundance and geographical distribution of species is limited. It can therefore be difficult to determine which threatened species exist in an enterprise's area of influence. It is recommended to apply the precautionary principle, assuming that in regions that are known for a high species density (high number species per unit area), a conservation plan should be elaborated in any case.

## Sources of information

**Conservation International**. Biodiversity Hotspots. Accessed on Sept 2013.

**European Union.** 1992. *EU Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.*

**FAO**. 2009. Environmental Impact Assessment and Monitoring in Aquaculture. *FAO Fisheries and Aquaculture Technical Paper 527*. Fisheries and Aquaculture Department Rome.

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**Myers, N., Mittermeier, R.A., Mittermeier, C.G., da Fonseca, G.A.B. and Kent, J.** (2000). Biodiversity Hotspots for Conservation Priorities. *Nature,* Vol. 403.

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INDICATOR NAME

# ECOSYSTEM ENHANCING PRACTICES (E 4.1.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME ECOSYSTEM DIVERSITY (E 4.1)

## Description

To ensure the effective conservation or improvement of complex ecosystems, including those with agricultural and/or forest components, a broad landscape approach is critical. Within this context, this indicator refers to all practices that aim at enhancing functional relationships and processes within ecosystems by different actors in agriculture-based food chains. Examples of ecosystem services that benefit and at the same time are shaped by agricultural practices are soil formation, nutrient cycling, water flow, pest regulation, pollination, water purification and climate regulation. Many practices can potentially enhance these functionalities, such as greater diversity of plants and animals (including fish), soil coverage, cultivation of perennials, maintenance of semi natural habitats with native vegetation and flowers and creation of pest-suppressive conditions.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied on all levels of the supply chain and is relevant for enterprises of all sizes that use and/or directly affect the integrity and functioning of ecosystems.

## Unit of measurement

This indicator intends to capture all activities and practices that the enterprise has implemented which have effectively enhanced the functioning of ecosystems (and thus the provision of ecosystem services) on or adjacent to the analyzed enterprise's operations during the analyzed time-frame. The activities – when applicable – have to be practiced on the entire enterprise's site.

## How to measure

» First decide which of the following examples of "best practices", whose implementation could play a more prominent role in enhancing the provision of ecosystem services, have been implemented ( if their application is feasible given the local climatic and ecological conditions). The operation may enlist additional practices with high ecosystem-enhancing potential.
» Next, check which of the "unacceptable practices" (listed below) the operation has been engaged with.

## Rating

**Dark Green score:**
**Cropland and livestock management**

» Land-cover and land use change to more structurally complex and species-diverse systems, such as agroforestry, mixed crop-livestock systems, mixed rice-fish systems, intercropping, perennials, forest gardens, etc; AND

» Use of ecological approaches in tillage, soil fertility and disease, pest and weed control (e.g. trap cropping), integrated pest management, integrated weed management, management of pollination, etc; AND
» Diversity-enhancing crop and grassland management (e.g. diverse crop rotation), such as late and/or staggered mowing, no use of synthetic herbicides, maintenance of wildflower strips and ecological infrastructures, such as stone and wood heaps, trees and hedgerows; AND
» Creation and maintenance of habitat networks that facilitate exchange between populations; AND
» Longer crop rotations, including nitrogen fixing species; AND
» Coverage of bare ground and other soil protection measures.

**Fisheries and aquaculture**

» Use of selective fishing gear and methods (e.g. turtle-excluding devices); AND
» Implementation of integrated fish culture practices, such as aquasilviculture (shrimp and mangrove), rice-fish farming and multi-trophic aquaculture; AND
» Promotion and implementation of the ecosystem approach to fisheries management and aquaculture development; AND
» Use of aquaculture feed from well-managed fisheries.

**Forestry**

» Establishment and conservation of multi-species tree stands; AND
» Creation and maintenance of wildlife habitat and of a species-diverse forest edge; AND
» The enterprise takes a landscape or ecosystem approach to assessing the dynamics of the forest where it operates, including interactions with adjacent non-forest land and ecosystems; AND
» The landscape approach is reflected in the enterprise's forest management plan; AND
» Afforestation or reforestation is implemented using a diversity of appropriate non-invasive species; AND
» Appropriate timber harvesting practices are employed, using best practices; AND
» Wildlife habitats are enhanced through appropriate use of forest diversity, including at the edge of the forest.

**Handling and processing**

» Operations treat their effluents and waste and rather than polluting water, soil or air, recover ecosystem-beneficial resources such as compost.

**Red score:**

» Annual monoculture cultivation and/or high external input livestock/aquaculture systems (e.g. stocking densities that exceed the local carrying capacity by a factor of 2 or more); OR
» Land use or land cover change from more complex systems, such as natural or semi-natural forests, grasslands and lakes are converted to arable land/aquaculture farms/single species operations; OR
» Reliance on off-farm synthetic inputs for both fertilizers and pesticides and/or complete reliance on off-farm feed.

### Limitations

The effects of production practices on ecosystem functioning have not been disentangled for all available practices and in all ecozones of the world. Therefore, it may be necessary to use information from other climatically or ecologically similar areas as a proxy.

## Sources of information

**Bioversity International.** Accessed on Sept. 2013.

**Convention on Biological Diversity.** Full text of the Convention on Biological Diversity. Accessed on Sept. 2013.

**EAFnet.** TToolbox on the Implementation of the Ecosystem Approach to Aquaculture. FAO Fisheries and Aquaculture Department Accessed on Sept 2013.

**FAO**. Global Soil Partnership. Accessed on Sept. 2013.

**FAO**. 1995. *Code of Conduct for Responsible Fisheries*. FAO Fisheries and Aquaculture Department.

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**FAO.** Biodiversity and Ecosystems Services. *In News Events and Bulletins*. Rome. Accessed on Sept. 2013.

**FAO**. 2009. *Ecosystem Approach to Fisheries and Aquaculture: Implementing the Code of Conduct for Responsible Fisheries.*

**Global Partnership for Forest and Landscape Restoration.** Accessed on Sept. 2013.

**Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services**. Accessed on Sept. 2013.

**Platform for Agrobiodiversity Research.** Accessed on Sept. 2013.

**Power A.G.** 2010. Ecosystem Services and Agriculture: Tradeoffs and Synergies. Phil. Trans. R. Soc. B 27 September 2010 vol. 365 no. 1554 2959-2971.

**The Economics of Ecosystems and Biodiversity.** Accessed on Sept. 2013.

**UNEP Millennium Ecosystem Assessment**. Guide to the Millennium Assessment Reports. Accessed on Sept. 2013.

INDICATOR NAME

# STRUCTURAL DIVERSITY OF ECOSYSTEMS (E 4.1.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME ECOSYSTEM DIVERSITY (E 4.1)

## Description

Many ecosystem services, such as biological pest control and pollination services, depend on the movement of organisms across the agricultural landscape. Hence, the spatial structure of the landscape strongly influences the magnitude of these services to agricultural ecosystems. In complex landscapes, natural enemies and pollinators move among natural and semi-natural habitats that provide them with refuge and resources that may be scarce in crop fields. Thus, this indicator looks at the extent of structural diversity in landscapes, including aquatic habitats.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for enterprises of all sizes and types whose operations are based on or affect ecosystems, both on used areas and land adjacent to them.

## Unit of measurement

This indicator measures the share of high structural diversity of habitats on areas where the analyzed enterprise is operating (including aquatic habitats) during the analyzed time-frame.

## How to measure

» Determine the total area of the ecosystems used in the operations and directly affected by these operations.
» Determine the share of land or aquatic and marine habitat, where the structural diversity of habitats – aquatic and terrestrial – is at least as high as in natural ecosystems of the region. Structural diversity pertains to the vertical layering and horizontal heterogeneity of habitats at the patch and landscape levels.

## Rating

**Dark Green score:**
Structural diversity on the complete utilized and adjacent land is at least as high as in natural ecosystems of the same region. Polyculture is practiced both in land and in aquatic (i.e. multi-trophic) operations.

**Red score:**
All utilized and adjacent land/aquatic habitat is covered by monocultures with a single habitat layer and no substantial horizontal heterogeneity, although the landscape would be structurally diverse without human influence.

## Limitations

The question of what is a sufficiently high structural diversity can be difficult to answer, as scientific and normative aspects differ when it comes to biodiversity targets. Often, the natural climax vegetation of a region (under current climate) is seen as ideal. In other cases, a maximum level of structural diversity, or a certain level that is typical for a traditional cultural landscape, may be considered as ideal.

## Sources of information

**Bioversity International.** Accessed on Sept. 2013.

**Boller E.F., Häni, F, and Poehling, H.M.(***eds.***).** 2004. Ecological Infrastructures: Ideabook on Functional Biodiversity at the Farm Level. *IOBCwprs Commission on Integrated Production Guidelines and Endorsement.*

**Convention on Biological Diversity.** Full text of the Convention on Biological Diversity. Accessed on Sept. 2013.

**FAO.** Biodiversity. Accessed on Sept. 2013.

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**UNEP Millennium Ecosystem Assessment**. Guide to the Millennium Assessment Reports. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# ECOSYSTEM CONNECTIVITY (E 4.1.4)

ENVIRONMENTAL INTEGRITY
BIODIVERSITY (E 4)
ECOSYSTEM DIVERSITY (E 4.1)

## Description

The health and integrity of the populations of many organisms depend on the possibility to move through the landscape and exchange genetic material with other populations. This possibility in turn depends on landscape structure, more precisely on whether habitats are sufficiently close to each other or connected via step-stone habitats and corridors. Furthermore, many species require an ensemble of different habitats for different functions, such as for nesting, mating and feeding. Hence, both the connectivity and "completeness" of habitats in a landscape are important determinants of biodiversity. This applies to terrestrial and marine habitats alike.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of supply chains and is relevant for enterprises of all sizes whose operations have an impact on landscape structure.

## Unit of measurement

This indicator focuses on the share of well-connected habitats in the areas where the analyzed enterprise is operating (including aquatic habitats) during the analyzed time-frame.

## How to measure

» Determine all sites and their respective areas, where the operations impact on landscape structure.
» For all of these areas, analyze the proximity of similar valuable habitats (e.g. forests, wetlands) to the nearest habitat of the same type. If possible, also analyze whether a diversity of structures is present in all parts of the landscape. Such landscape analysis can be done on-site using visual rating schemes, or by means of remote sensing (using aerial photographs or satellite imagery with sufficiently high spatial resolution). To rate the connectivity of the landscape key taxa, whose mobility patterns are known, have to be selected.
» For each area, calculate the share of the landscape that can be considered to be ecologically well-connected.

## Rating

**Dark Green score:**
All areas at all sites used can be considered to be ecologically well-connected.

**Red score:**

» Less than 20% of the areas or of all sites used can be considered to be ecologically well-connected; OR

» The activities of the company have contributed substantially to reducing the connectivity and structural complexity of the landscape.

## Limitations

Connectivity/fragmentation and their impact on species meta population dynamics is often studied at the landscape scale, rather than at the farm scale, which does not have an ecological relevance. The connectivity of habitats in a landscape will have different effects, depending on the considered species. Any measure serving the quantification of landscape connectivity will necessarily be a compromise among the needs of different species.

## Sources of information

**CBD**. 2006. Review of Experience with Ecological Networks, Corridors and Buffer Zones. *CBD Technical Series* n. 23.

**Council of Europe**. Nature Ecological Networks and Emerald Network. *In Culture, Heritage and Diversity*.

**European Commission**. The Natura 2000 Network. In *Environment/Nature and Biodiversity*. Accessed on Sept. 2013.

INDICATOR NAME

# LAND USE AND LAND COVER CHANGE (E 4.1.5)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME ECOSYSTEM DIVERSITY (E 4.1)

## Description

Land Use and Land Cover Change (or LULCC) is a general term for the human modification of Earth's terrestrial surface. Current rates, extents and intensities of LULCC are greater than ever in history, driving unprecedented changes in ecosystems and creating environmental concerns of human populations. In the context of this indicator, land use refers to human activities stemming from agriculture, forestry, aquaculture and industrial activities that alter processes using land surfaces, whereas land cover refers to the physical and biological cover over the surface of land, including water, vegetation, bare soil, and/or artificial structures.

## Relevance to enterprise type and supply chain levels

This indicator is relevant for all land operations of all sizes and types, including aquaculture operations, whose operations have an impact on land use and land cover.

## Unit of measurement

This indicator measures whether natural or near-natural habitats (e.g. wetlands, primary forests, grasslands, protected waterways, mangrove forests) or structurally complex land use systems (e.g. grasslands, agroforestry, polycultures) have been replaced by ecologically less valuable forms of land use or land cover due to the enterprise's operations during the last 20 years.

## How to measure

- Delineate sites where the enterprise's operations impact on land use and land cover, both on-site and off-site. For each site, quantify and delineate the area affected by the enterprise's operations.
- For all identified sites and areas, determine whether there have been any conversions from ecologically valuable to less valuable habitats caused by the enterprise's operations during the past 20 years. Cultivated areas have to be included in this analysis; check for these areas, whether the structural and species diversity or the productivity of vegetation have been reduced due to the operations (= area 1)
- Equally, determine sites and areas where the enterprise's operations have contributed to LULCC that has enhanced ecological quality (= area 2).
- Calculate the net LULCC by subtracting areas with "negative LULCC" from those with "positive LULCC" (= area 2 minus area 1).

## Rating

**Dark Green score:**
The net LULCC caused by the enterprise is positive (more "upgrading" than "downgrading" of habitat) and the enterprise has not caused any ecologically degrading LULCC off-site.

**Yellow score:**
The enterprise has not caused any ecologically degrading LULCC.

**Red score:**
The enterprise has caused ecologically degrading LULCC, without any ecological compensation measures either on-site or off-site and the net LULCC caused by the enterprise is negative (more "downgrading" than "upgrading" of habitat).

## Limitations

The ecological value of a certain habitat in a certain region depends on factors that cannot always be quantified, and on the norms and values of the stakeholders involved. Therefore, stakeholder and expert opinions should be considered when it comes to rating the net effects of any particular LULCC.

## Sources of information

**European Commission**. Green Infrastructure Strategy. Environment. *Nature and Biodiversity*. Accessed on Sept. 2013.

**FAO**. 2012. Global Forest Land-Use Change. *Forestry paper* n. 169. Rome.

**Herold, M., Brady, M., Woodcock, C., Schmullius, C. and Latham, J.** Land Cover. *Terrestrial Essential Climate Variables*, T09. Accessed on Sept 2013.

**Lindquist E.J., D'Annunzio, R., Gerrand, A., MacDicken, K., Achard, F., Beuchle, R., Brink, A., Eva, H.D., Mayaux, P.,San-Miguel-Ayanz, J. and Stibig, H.J.** 2012. Global forest land use change: 1990 – 2005. *FAO Forestry Paper* n. 169. FAO. Rome.

**Simonetti D., Beuchle R., and Eva H. D.** 2011. *User Manual for the JRC Land Cover/Use Change Validation Tool.* European Commission Joint Research Centre Institute for Environment and Sustainability.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# SPECIES CONSERVATION TARGET (E 4.2.1)

ENVIRONMENTAL INTEGRITY
BIODIVERSITY (E 4)
SPECIES DIVERSITY (E 4.2)

## Description

Species Conservation Target refers to the existence of a written plan with exact objectives, targets, action points and time-lines for the conservation, protection and rehabilitation of rare, endemic and other species of particular interest. Setting and implementing a conservation target requires: research and baseline data collection of the local target species and their habitats (list of species and production of distribution maps based on field surveys); mitigation of human-wildlife conflict; and working with communities for creating sustainable livelihoods and increasing protection of critical wildlife areas.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain of any size, whose operations are in or adjacent to areas where rare, endemic or other species of interest have been identified. Capture fisheries activities are concerned by this indicator, regardless of the species they target. This is because some target species may be neither rare, nor endemic (such as migratory stocks of some tuna species), but still need some 'protection' through the implementation of fisheries management plans.

## Unit of measurement

This indicator determines whether the enterprise has investigated if rare, endemic or other species of particular interest thrive in or adjacent to the areas of their operations and, if that is the case, whether they have set a target on the conservation and/or rehabilitation of those species and their habitats. In the context of capture fisheries, it will be if a fisheries management plan exists for the targeted species, and whether it is closely abided by.

## How to measure

- Determine if the operations are in or adjacent to areas where habitats for rare, endemic or other species of interest have been identified.
- If so, assess whether the operation has a written and binding plan, including fisheries management plans – public and available to all stakeholders - with exact objectives, targets and time lines for the conservation and rehabilitation of these species.
- If such a plan exists, check whether the operation has made exact steps into the implementation and fulfillment of the objectives within the expected time frame.

## Rating

**Dark Green score:**
The enterprise has written habitat/species conservation targets, available to all stakeholders, with exact objectives and time-frames and steps have been implemented towards achieving these targets.

**Yellow score:**

» The enterprise has a plan with exact targets, but no steps have been made towards achieving those; OR

» The enterprise has a conservation target and has been implementing steps towards its implementation, however this has not been put into writing; OR

» The enterprise has a conservation target and steps have been made towards achieving this target, however the plan is neither public nor available to all stakeholders.

**Red score:**
None of the above requirements have been met as yet, including that no investigation has been undertaken to find out if rare, endemic or other species of particular interest are in, or adjacent to, the areas of operations.

## Limitations

Both wild and domesticated species need to be considered, though one has to acknowledge the limited role of one single operation towards the identification, conservation and eventual rehabilitation of rare endemic and other species of interest. In case of domesticated plants, an example for such efforts could be implemented through the establishment of an on-site seed bank. Nevertheless, partnerships with research institutions, universities, government agencies and other operations within the same area are crucial for any successful conservation plan.

## Sources of information

**Center for Sustainability and the Global Environment.** *Atlas of the Biosphere*. Nelson Institute for Environmental Studies at the University of Wisconsin. Accessed on Sept 2013.

**CITES**. CITES Species Database. Accessed on Sept. 2013.

**FAO.** 2007. Country Reports on The State of the World's Animal Genetic Resources for Food and Agriculture.

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**PAR and FAO**. 2011. *Biodiversity for Food and Agriculture*.

INDICATOR NAME

# SPECIES CONSERVATION PRACTICES (E 4.2.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME SPECIES DIVERSITY (E 4.2)

## Description

This indicator refers to all practices that aim at the protection and rehabilitation of wild species in agriculture-based food chains. Many practices can contribute to this goal, such as maintaining a diversity of plants and animals (including fish) in production, the cultivation structurally diverse stands of perennials, the protection of structures and habitats needed by wildlife (e.g. bird nesting aids and insect nesting boxes) and the establishment of habitats within cultivated landscapes that can serve as refuge to animals.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that manage and influence agro-ecosystems, including also forests and marine ecosystems.

## Unit of measurement

This indicator intends to capture all activities and practices that the operation has implemented which effectively protect and rehabilitate populations of wild plants and animals on or adjacent to the analyzed enterprise's operations during the analyzed time-frame.

## How to measure

- Delineate all sites and areas where the enterprise's operations shape agro-ecosystems, including forests and marine ecosystems, and where they influence natural and near-natural ecosystems. Then decide which of the following examples of "best practices" whose implementation can support the protection and rehabilitation of wild species and their populations are appropriate in these areas. The operation may enlist additional practices with high wild species conservation potential, such as:
  - land cover and land use change towards more structurally complex and species-diverse systems, such as agroforestry, mixed crop-livestock systems, mixed rice-fish systems, mangrove-shrimp, intercropping, perennials, forest gardens, etc;
  - ecologically-based approaches in tillage, fertilization and disease, pest and weed control (e.g. trap cropping), integrated pest management, integrated weed management in both land and water-based farming, etc;
  - diversity-enhancing crop and grassland management, such as late and/or staggered mowing, no use of conditioners (as they kill invertebrates), maintenance of wildflower strips and ecological infrastructures (e.g. stone and wood heaps, trees and hedgerows);
  - creation and maintenance of habitat networks that facilitate exchange between populations;
  - establishment of conservation of multi-species tree stands;
  - creation and maintenance of wildlife habitat and of a species-diverse forest edge;
  - installation of nesting aids.

» Next, identify those practices that have been implemented, describe their extent and assess their efficacy. At this stage, advice from experts and local stakeholders with knowledge of local ecosystems may be sought.

## Rating

**Dark Green score:**
All feasible conservation and rehabilitation practices have already been implemented and for some of these, positive effects can be proven.

**Red score:**
» Less than 20% of the feasible practices have been implemented; OR
» The enterprise's activities have contributed to deteriorating conditions for wildlife conservation and rehabilitation.

## Limitations

The efficacy of practices that are meant to protect and rehabilitate wildlife can be difficult to determine, and therefore it may be hard to attribute conservation successes and failures to any particular practice. Expert advice should be sought in cases of doubt. Furthermore, conservation and rehabilitation practices must fit into the local climatic and ecological context; for example, the dimension, construction and placement of bird nesting aids have to be appropriate for local species.

## Sources of information

**Bioversity International.** Accessed on Sept. 2013.

**CITEA.** CITES Species Database. Accessed on Sept. 2013.

**Convention on Biological Diversity.** Full text of the Convention on Biological Diversity. Accessed on Sept. 2013.

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**UNEP Millennium Ecosystem Assessment**.

**UNEP.** 2012.Ecosystem Approach to Aquaculture Management and Biodiversity Conservation in a Mediterranean Coastal Wetland: Case Study of Doniana Marshes (Andalucia, Spain). *Third Meeting of National Correspondents of the Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean Region (SAP BIO)/MedMPAnet Project Mid-term Workshop, Malaga, 4 - 6 July 2012.*

INDICATOR NAME

# DIVERSITY AND ABUNDANCE OF KEY SPECIES (E 4.2.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME SPECIES DIVERSITY (E 4.2)

## Description

Key species include threatened and vulnerable wild species, as well as invasive species. The indicator assesses the state of diversity and abundance of these species in order to reflect the integrity of the ensemble of species native to the sites where the analyzed enterprise operates.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that manage and influence agro-ecosystems, including also forests and marine ecosystems. Although this indicator can be applied relatively easily to well-defined coastal areas and coastal fishing grounds, it will be more difficult to implement in large marine ecosystems.

## Unit of measurement

This indicator serves to determine how diversity and abundance of threatened and vulnerable wild species on the one hand, and invasive species on the other, have developed in, and adjacent to, the enterprise's operations during the analyzed time-frame.

## How to measure

- Delineate all sites and areas where the enterprise's operations shape agro-ecosystems, including forests and marine ecosystems, and where they influence natural and near-natural ecosystems.
- Then, investigate which wild species in these areas are threatened or vulnerable. Through field surveys, estimate the diversity and abundance of key species in order to establish a baseline. Local conservation experts and organizations should be involved in this step. If previous studies (such as those of public biodiversity monitoring projects) are available, use those.
- Next, monitor the development of these species through targeted conservation measures and monitor the changes in their populations during the analyzed timeframe. Where monitoring data exist, an ex-post assessment of past developments is possible as well.
- Monitor the development of populations of introduced species to make sure they do not become invasive.

## Rating

**Dark Green score:**

- The diversity and populations of the monitored threatened and vulnerable species have increased, without imbalances in the ecosystem; AND
- The populations of introduced alien species have decreased; AND
- Species selection and monitoring methodology have been approved by public or private conservation specialists or organizations.

**Red score:**

» The enterprise has no information about the development of populations of threatened, vulnerable and introduced species in ecosystems managed or influenced by the enterprise's operations; OR

» Populations of threatened and vulnerable species have decreased and introduced species have become invasive, partly due to the impact of the enterprise's operations.

## Limitations

Monitoring the populations of all threatened, vulnerable and introduced species will not be possible in many places. Therefore, a scientifically and pragmatic selection of key species to monitor will very likely be necessary. This selection, as well as the scientifically-correct species monitoring, requires profound knowledge and substantial time. Hence, the cooperation of public and private conservation organizations should be ensured in such activities.

## Sources of information

**Bioversity International.** Accessed on Sept. 2013.

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**International Union for Conservation of Nature and Natural Resources**. IUCN Red List of Threatened Species. Accessed on Sept 2013.

**Platform for Agrobiodiversity Research.** Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# DIVERSITY OF PRODUCTION (E 4.2.4)

ENVIRONMENTAL INTEGRITY
BIODIVERSITY (E 4)
SPECIES DIVERSITY (E 4.2)

## Description

This indicator refers to diversification strategies that result in production systems, such as polycultures, with higher diversity of crops, trees, livestock and fish species, as well as in integrated systems, such as agroforestry, mixed rice-fish systems, etc.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at the primary production level of value chains and is relevant for operations of all sizes whose operations are based on agro-ecosystems, including also forests and aquatic ecosystems.

## Unit of measurement

This indicator focuses on the share of utilized area where a diverse crop rotation and/or several species are kept/produced at the same time during the analyzed time-frame.

## How to measure

» Quantify the total area where the operation uses agro-ecosystems. For animal production, the number of animals and annual turnover is an alternative measure of production volume.
» Determine all sites and quantify their respective areas, where the operations practice diverse crop rotations and where several plant/tree/livestock/fish species are produced at the same time. Published reports and papers on agro-biodiversity can serve to provide orientation.
» Calculate the share of these high-diversity areas in the enterprise's total utilized area, versus the share of diverse animal production over the total production volume.

## Rating

**Dark Green score:**
All of the utilized area is either covered with diverse crop rotations or has a polyculture /multi-trophic system in place, and all animal production is characterized by a high species diversity.

**Red score:**
» Crops are grown in monoculture, without any crop rotation, or only in a two-year constant rotation with the same two crops, although alternative crops would be available; OR
» Highly intensive single-species farming, forestry, fisheries operations and plantations.

## Limitations

There is no universally valid threshold that would separate diverse from non-diverse systems. The number of species that are available to production is variable; the more limiting the conditions in a region, the less species will thrive there. For example, a rotation with three crops may be considered diverse in some dry areas, while three is a low number in some humid temperate regions. It is recommendable to develop a regional rating scheme that takes into account the general diversity of crops, animals and fish in the considered area.

## Sources of information

**Center for Sustainability and the Global Environment.** Atlas of the Biosphere. Nelson Institute for Environmental Studies at the University of Wisconsin. Madison. Accessed on Sept. 2013.

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**Platform for Agrobiodiversity Research.** Accessed on Sept. 2013.

INDICATOR NAME

# WILD GENETIC DIVERSITY ENHANCING PRACTICES (E 4.3.1)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME GENETIC DIVERSITY (E 4.3)

## Description

This indicator refers to all practices that aim at enhancing the genetic diversity within wild plant and animal species in agriculture-based food chains. Genetic diversity is crucial for long-term survival of every species and their capacity to adjust to any changes.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprise of all sizes which have an influence on biodiversity.

## Unit of measurement

This indicator intends to capture all activities and practices that the enterprise has implemented which have enhanced the genetic diversity of wild species on, or adjacent to, the enterprise's operations during the analyzed time-frame.

## How to measure

» First, identify and delineate all sites and areas where the enterprise's operations have an impact on biodiversity in general, and on genetic diversity of wild species in particular. The help of local stakeholders and conservation experts should be sought at this stage.
» Then, decide which of below examples of "best practices", whose implementation can help to conserve or enhance wild species' genetic diversity, have been implemented (if applicable, for instance, if their application is feasible given the local climatic and ecological conditions). The operation may enlist additional practices with a potential to enhance the genetic diversity within wild species.
» Next, decide which of the "unacceptable practices" (listed below) the operation has been engaged with.

## Rating

**Dark Green score:**
**Cropland and livestock management**

» Land cover and land use change to more structurally complex and species-diverse systems, such as agroforestry, mixed crop-livestock systems, mixed rice-fish systems, intercropping, perennials, forest gardens, etc; AND
» Use of ecologically-founded approaches in tillage, fertilization and disease, pest and weed control (e.g. trap cropping), integrated pest management, integrated weed management, etc; AND
» Diversity-enhancing crop and grassland management, such as late and/or staggered mowing, no use of conditioners (as they kill invertebrates), maintenance of wildflower strips and ecological infrastructures (e.g. stone and wood heaps, trees and hedgerows); AND

» Creation and maintenance of habitat networks that facilitate exchange between populations; AND
» In-situ conservation of genetic diversity.

**Fisheries and aquaculture**

» Use of extra escape panels to crab traps, extra wide and stiff netting instead of the recommended netting by law that allows more small fish to escape, use of techniques such as long hauling or turtle excluding devices that reduce by-catch; AND
» Fishing with special equipment (e.g. pound netting) that do not drag the ground and do not disturb natural habitats.

**Forestry**

» Establishment of conservation of multi-species tree stands; AND
» Creation and maintenance of wildlife habitat and of a species-diverse forest edge.

**Red score:**

» Monoculture cultivation and/or intensive livestock/aquaculture operations, for example stocking densities that exceed the carrying capacity of local pastures/aquaculture operations by more than a factor of 2; OR
» Land use or land cover change from more complex systems (e.g. natural or semi-natural forests and lakes), to arable land/aquaculture farms/single species operations; OR
» No habitat left aside for wildlife, such as buffer strips, wildflower strips, etc; OR
» Capturing/buying any fish species from stocks that are endangered; OR
» All production of crops is based on a single genetic lineage or all production of animals is based on a single genetic lineage of an exotic breed.

## Limitations

Whether practices to conserve or enhance genetic diversity have been effective can only be stated with certainty through laboratory analysis. Where these are not possible for technical or financial reasons, proxies (such as differing phenotypes of populations) could be used.

## Sources of information

**Bioversity International.** Accessed on Sept. 2013.

**Convention on Biological Diversity.** Full text of the Convention on Biological Diversity. Accessed on Sept. 2013.

**FAO DAD-IS**. Report of 14th Regular Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA). Accessed on Sept. 2013.

**FAO**. 1997. Aquaculture Development. *FAO Technical Guidelines for Responsible Fisheries*, No. 5. FAO on the use and management genetic diversity in aquaculture. Rome.

**FAO**. Biodiversity. Accessed on Sept. 2013. Rome.

**International Union for Conservation of Nature and Natural Resources.** IUCN Red List of Threatened Species. Accessed on Sept 2013.

**Platform for Agrobiodiversity Research.** Accessed on Sept. 2013.

**The Economics of Ecosystems and Biodiversity**. Accessed on Sept. 2013.

INDICATOR NAME

# AGRO-BIODIVERSITY *IN-SITU* CONSERVATION (E 4.3.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME GENETIC DIVERSITY (E 4.3)

## Description

This indicator refers to the protection, *in-situ* conservation and rehabilitation of the genetic diversity of domesticated plant and animal and aquaculture fish species in agriculture-based food chains. Genetic resources hold the key to increasing food security and improving livelihoods. Conservation of genetic diversity means: the on-farm selection of high quality seeds, their propagation and multiplication and adequate storage (for crops); the conservation of endangered breeds in their traditional production systems (for livestock); ecologically-safe fishing technologies and environmentally-sound aquaculture practices (for fisheries); developing seed centers and establishing the conservation of priority species (for forestry).

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes with a potential to contribute to *in-situ* conservation of agro-biodiversity. Processing and marketing operations can also have an impact on the genetic diversity of domesticated and aquaculture species through their purchasing policies; thus, this indicator is also relevant to them.

## Unit of measurement

For plants, this indicator measures the share of production from other than the most common genetic lineage, for each used species in the enterprise's operations, during the analyzed time-frame. For animals, this indicator measures the share of production from other than the most common exotic breed, or the most common genetic lineage within exotic breed where no locally adapted breeds exist for each used species, in the enterprise's operations during the analyzed time-frame.

## How to measure

» Identify all species of plants and animals (including livestock and fish) kept in, or for, the enterprise's operations.
» For each species, determine what share the most common genetic lineage of crops, or the most common exotic breed, or the most common genetic lineage within exotic breed where no locally adapted breeds exist, occupies from the total lineages/breeds the enterprise produces/keeps.
» Subtract this share from 100%.

## Rating

**Dark Green score:**
For all species, the main genetic lineage of crops/exotic breed, or the most common genetic lineage within exotic breed where no locally adapted breeds exist, does not represent more than 50%. The threshold for a too high genetic uniformity should be determined with the help of experts and for each individual species.

**Red score:**
The common lineage/exotic breed, or one genetic lineage within exotic breed where no locally adapted breeds exist, occupies 100% of lineages/breeds in all species used.

## Limitations

Species diversity could be confused with genetic diversity: an operation may be very rich in species, but very poor in within-species genetic diversity when each species only occurs in the form of a single genetic lineage.

## Sources of information

**FAO DAD-IS**. Domestic Animal Diversity Information System. *In Report of 14th Regular Session of the Commission on Genetic Resources for Food and Agriculture*. Accessed on Sept. 2013.

**FAO.** Seed diversity of crops and varieties. Accessed on Sept. 2013. Rome.

**FAO. 1993. Biodiversity.** Accessed on Sept. 2013. Rome.

**FAO**. 2005. Country Reports on the State of Animal Genetic Resources.

**FAO. 2007.** *Global Plan for Action for Animal Genetic Resources and the Interlaken Declaration*. Adopted by the International Technical Conference on Animal Genetic Resources for Food and Agriculture. Commission on Genetic Resources for Food and Agriculture.

**FAO**. Forest Genetic Resources. Accessed on Sept. 2013.

**FAO.** *The International Treaty on Plant Genetic Resources for Food and Agriculture*. Accessed on Sept. 2013.

**FAO**.1993. Biodiversity to nurture people. *In Harvesting Nature's Diversity*.

INDICATOR NAME

# LOCALLY ADAPTED VARIETIES AND BREEDS (E 4.3.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME GENETIC DIVERSITY (E 4.3)

## Description

Farmers over time have developed plant varieties and animal breeds that are particularly adapted to local conditions, including social, economic and ecological conditions, and that incorporate a large degree of intra-specific/within breed genetic diversity. Locally adapted varieties and locally adapted and rare breeds are crucial in maintaining food security, especially in areas with little control over crop growth conditions. They are also a foundation of resilient local food systems. This indicator also includes the *in-situ* preservation of rare and traditional varieties and breeds.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that are involved in crop or animal production, except capture fisheries. Processing and marketing operations also can have an impact on the conservation and promotion of locally adapted, rare or traditional varieties/breeds through their purchasing policies, thus this indicator is also relevant to them.

## Unit of measurement

For plants, this indicator measures the share of production accounted for by locally adapted varieties, and by rare and traditional (heirloom) varieties during the analyzed time-frame. For animals, this indicator measures the share of production accounted for by locally adapted and/or rare breeds during the analyzed time-frame.

## How to measure

» Identify and delineate all sites and areas where the operation is involved in animal and crop production (including aquaculture), or where such production is influenced by the practices of the operation.
» Determine what is the share of production (by area, animal number of live weight) accounted for by: locally adapted plant varieties or animal breeds; rare; and traditional (heirloom) crop varieties and livestock breeds.

## Rating

**Dark Green score:**
At least 50% of the cultivated lands are used for locally adapted, rare or traditional varieties AND at least 50% of the animal population consists of locally adapted or rare breeds.

**Red score:**
The enterprise does not have any locally adapted, rare or traditional varieties and/or breeds.

## Limitations

Lack of knowledge about what constitutes locally adapted varieties/breeds, as well as lack of access to such varieties and breeds, may be a limitation. Furthermore, a variety or breed may have contradicting characteristics; for example, it can be well-adapted to a certain climate without being traditional or rare. Introduced better-adapted breeds and varieties may even threaten the continuation of traditional production practices and the existence of traditional breeds. In such situations, a prioritization involving local stakeholders and experts will be necessary.

## Sources of information

**Bondad-Reantaso, M.G., Arthur, J.R. and Subasinghe, R.P. (*eds*).** 2008. Understanding and applying risk analysis in aquaculture. *FAO Fisheries and Aquaculture Technical Paper*. No. 519.

**Dunham, R.A. 2001.** Review of the Status of Aquaculture Genetics. *Technical Proceedings of the Conference on Aquaculture in the Third Millennium.*

**FAO DAD-IS.** Domestic Animal Diversity Information System . *In Report of 14th Regular Session of the Commission on Genetic Resources for Food and Agriculture*. Accessed on Sept. 2013.

**FAO.** 1997. Aquaculture Development. *FAO Technical Guidelines for Responsible Fisheries* No. 5.

**FAO.** 2007. Global Plan for Action for Animal Genetic Resources and the Interlaken Declaration. Adopted by *the International Technical Conference on Animal Genetic Resources for Food and Agriculture*. Commission on Genetic Resources for Food and Agriculture. Rome.

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**FAO.** Seed diversity of crops and varieties. Accessed on Sept. 2013.

**FAO.** *The International Treaty on Plant Genetic Resources for Food and Agriculture*. Accessed on Sept. 2013.

**FAO.** 1993. Biodiversity to nurture people. *In Harvesting Nature's Diversity*.

**FAO.** 2012. Report of a consultation on the definition of breed categories. Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture. Seventh Session of the commission on Genetic Resources for Food and Agriculture, Rome, 24-26 October 2012. CGRFA/WG-AnGR-7/12/Inf.7.

INDICATOR NAME

# GENETIC DIVERSITY IN WILD SPECIES (E 4.3.4)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME BIODIVERSITY (E 4)
SUB-THEME GENETIC DIVERSITY (E 4.3)

## Description

The importance of the abundance and diversity of wild species cannot be understated. Pest resistance genes are rare and predominantly found in unimproved varieties or wild accessions – the same can be said about pathogen resistance, thus wild ancestors and relatives are the keys to genetic diversity. Microorganisms, along with invertebrates, are also invaluable contributors to the ecosystems: they pollinate crops and trees, recycle nutrients in soils, ferment bread and cheese, help animals digest otherwise indigestible forage and, with proper management, can provide natural protection against plant pests. Successful measures to preserve wild species' diversity include encouraging pollinator populations by conserving diverse cropping patterns on their farms; employing predator insects; leaving stubble in the field after harvest.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the supply chain and is relevant for enterprises of all sizes which have an influence on wild genetic biodiversity, including aquatic biodiversity.

## Unit of measurement

This indicator measures the share of operations where there is a high genetic diversity in non-utilized plants, animals and microorganisms.

## How to measure

- Identify and delineate the sites and areas where the enterprise's operations have an influence on the genetic diversity of wild species.
- Determine what is the share of production area and/or sites where there is a high diversity of non-utilized plants.
- Determine what is the share of production area and/or sites where there is a high diversity of earthworms (other taxa may be used as well).

## Rating

**Dark Green score:**
On at least 5% of the enterprise's lands, non-utilized plants are growing AND there if a high diversity of the chosen taxa.

**Red score:**
The enterprise does not have even 1% of land with non-utilized plants AND/OR the diversity the chosen taxa is low.

## Limitations

Genetic diversity within species can only be analyzed with certainty through laboratory analysis. Where these are not possible for technical or financial reasons, proxies (such as differing phenotypes of populations) need to be used.

## Sources of information

**Caliskan M. (Ed.)**. 2012. *Genetic Diversity in Microorganisms*. InTech.

**FAO**. Micro-organisms and invertebrates. Magnifying Hidden Biodiversity. *Commission on Genetic Resources for Food and Agriculture*. Rome. Accessed on Sept. 2013.

**FAO**. 1993. Biodiversity to nurture people. *In Harvesting Nature's Diversity*.

**FAO**. 2007. The State of the World's Animal Genetic Resources for Food and Agriculture.

**FAO**. Commission on Genetic Resources for Food and Agriculture. Rome. Accessed on Sept. 2013.

**FAO**. 2010. *The Second Report on The State of the World's Plant Genetic Resources for Food and Agriculture*. Rome.

**McCarry D. A.** *Methodology of a Visual Soil - Field Assessment Tool to support and contribute to the LADA Programme*. FAO. Accessed on Sept. 2013.

INDICATOR NAME **SAVING OF SEEDS AND BREEDS (E 4.3.5)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **BIODIVERSITY (E 4)**
SUB-THEME **GENETIC DIVERSITY (E 4.3)**

## Description

This indicator refers to the practice of on-farm animal breeding with locally adapted or rare breeds, as well as to the practice of saving seeds or other reproductive materials (e.g. tubers) for use from year to year for annuals, and of nuts, tree fruits and berries for perennials and trees. Farmers and gardeners have been saving traditional varieties and selecting breeding stock with particular performance traits that were adapted to their local conditions, including social, economic, and ecological conditions, for thousands of years. While saving seed and even exchanging seed with other farmers has been a traditional practice, these practices have become illegal for the plant varieties that are patented, or otherwise owned by an entity.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that are involved in breeding and selection activities, including aquaculture. Processing and marketing operations can also have an impact on the conservation and promotion of on-farm seed saving and breeding activities through their purchasing policies, thus this indicator is also relevant to them.

## Unit of measurement

For plants, this indicator serves to check whether the operation saves seeds to conserve traditional varieties. For animals, this indicator serves to check whether the operation engages with breeding work to conserve locally adapted breeds, including aquatic breeds.

## How to measure

» Identify those parts of the enterprise's operations where animal and plant breeding are done, or where related activities of others are influenced.
» Find out if the enterprise's operation has been practicing seed-saving during the analyzed time-frame.
» Find out if the operation has been engaged with the selection of breeding stock with locally adapted or rare animal breeds.

## Rating

**Dark Green score:**

» Most of the seeds of those species and varieties where this is feasible are saved from year to year, and/or the enterprise is engaged with the breeding of at least one locally adapted breed of animals in the operation, if feasible (in some regions, no locally adapted breeds are available).
» The enterprise encourages its input providers to save seeds and keep rare/traditional breeds and promote such practices in the enterprise's communication with all stakeholders.

**Red score:**

» The enterprise does not save any seeds, nor use open pollinating varieties, although this would be feasible; OR

» The enterprise does not keep any locally adapted and/or rare breeds, although this would be feasible.

» The enterprise discourages its input providers (verbally or simply by avoiding making contracts with such producers) to save seeds, use open-pollinating varieties and/or keep rare/traditional breeds, although the enterprise could do so.

## Limitations

As breeding, as well as the proper storage of seeds, are not always and everywhere possible, feasibility should first be assessed. Local stakeholders, such as plant breeders and farmers, should be involved in this assessment.

## Sources of information

**FAO DAD-IS**. Domestic Animal Diversity Information System. *In Report of 14th Regular Session of the Commission on Genetic Resources for Food and Agriculture*. Accessed on Sept. 2013.

**FAO.** Promoting the Growth and Development of Smallholder Seed Enterprises for Food Security Crops. Accessed on Sept. 2013.

**FAO**. *Seed diversity of crops and varieties*. Rome. Accessed on Sept. 2013.

**FAO**. 1993. Biodiversity to nurture people. *In Harvesting Nature's Diversity*.

**FAO.** 2007. Global Plan for Action for Animal Genetic Resources and the Interlaken Declaration. Adopted by *the International Technical Conference on Animal Genetic Resources for Food and Agriculture*. Commission on Genetic Resources for Food and Agriculture. Rome.

**FAO**. Biodiversity. Accessed on Sept. 2013.

**FAO.** *The International Treaty on Plant Genetic Resources for Food and Agriculture*. Accessed on Sept. 2013.

INDICATOR NAME

# MATERIAL CONSUMPTION PRACTICES (E 5.1.1)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME MATERIALS AND ENERGY (E 5)
SUB-THEME MATERIAL USE (E 5.1)

## Description

The replacement of virgin non-renewable materials by recycled and renewable materials and the reduction of the material intensity of production (i.e. increased eco-efficiency) are two central pillars of a green economy. This indicator is used to assess the extent to which activities and practices that foster the strengthening of these two pillars have been implemented in the operations of the analyzed enterprise.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the value chain and of all sizes whose operations depend on supply with materials of any kind. Nevertheless in processing, packaging and cold storage facilities, measurement requires expert evaluation.

## Unit of measurement

This indicators focuses on compiling all practices and activities that have been implemented that effectively: reduced the material intensity of the enterprise's operations; and replaced virgin non-renewable materials (including packaging, mulching, nets, greenhouse plastic, construction materials - excluding fuel) by recycled, reused and renewable ones(including wood) in the operation and replaced synthetic inputs by natural inputs.

## How to measure

The menu of practices that potentially reduce material intensity and replace non-renewable virgin materials includes:

- Consequent prioritization: minimize material input > minimize wastage > recycle waste and use internal material sources > acquire recycled materials > acquire non-recycled material.
- Replacement of materials with non-renewable, insecure supply by renewable options.
- Replacement of material-intensive processes and machinery by more efficient alternatives.
- Nutrient management: establishment of farm-level and parcel-level nitrogen and phosphorus balances, as a basis for fertilization planning, and targeted nutrient application using appropriate technologies, taking into account soil and weather conditions and crop development.

- First, identify the type, extent and effectiveness of all practices and activities implemented in the enterprise that contributed to a reduction of material intensity per unit produce and a reduction of the share of non-renewable virgin materials.
- Compare the list of feasible practices with the list of implemented practices and rate the share of practices that have been put into practice.

## Rating

**Dark Green score :**
All feasible practices to reduce the consumption of non-renewable, virgin materials have already been implemented.

**Red score:**
Less than 20% of the feasible practices of the company's non-renewable material-saving potential has been realized.

## Limitations

Compiling the list of available practices for reducing material intensity and replacing non-renewable, virgin materials by renewable, recycled or reused alternatives for the enterprise requires a rating of the feasibility and meaningfulness of numerous measures. This is costly and requires the involvement of eco-efficiency experts, as compiling the list requires a good knowledge of available technologies and materials. The added benefit of having such a list is that it can be used as guidance to future eco-efficiency activities.

## Sources of information

**Collaborating Centre on Sustainable Consumption and Production.** Accessed on Sept. 2013.

**European Environment Agency**. Waste and material resources. Accessed on Sept. 2013.

**United Nations Conference on Trade and Development.** 2004. *A manual for the preparers and users of eco-efficiency indicators.* Accessed on Sept. 2013.

**United Nations Environment Programme and United Nations Industrial Development Organization**. UN Clean Production Programmes. Accessed on Sept. 2013.

**United Nations Environment Programme.** *Green Economy Report*. Accessed on Sept. 2013.

**Wuppertal Institute for Climate, Environment and Energy**. Accessed on Sept. 2013.

INDICATOR NAME **NUTRIENT BALANCE (E 5.1.2)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **MATERIALS AND ENERGY (E 5)**
SUB-THEME **MATERIAL USE (E 5.1)**

## Description

To optimize the efficiency of nutrient use and prevent unproductive nutrient losses that pollute the environment, nutrient surpluses and deficiencies should be prevented at the enterprise and parcel/site levels. Therefore, operations in primary production should monitor and out-balance their supply/demand (or imports and exports) of nutrients.

## Relevance to enterprise type and supply chain levels

This indicator applies to all enterprises whose operations' major amounts of nutrients (in the form of fertilizers, feed, manure, or biomass of any form) are imported and exported. This includes agricultural, forestry and aquaculture operations but is not applicable in the post-harvest chain.

## Unit of measurement

This indicator measures the nutrient balance of the enterprise's operation (supply versus demand, or imports versus exports at farm or parcel level) for nitrogen and phosphorus. At least, either a supply-demand balance (as common in several European countries) or an import-export balance ("farm gate balance") should be calculated. Calculating parcel-level balances will enhance the usefulness of data; such calculations can serve as a basis to fertilization planning.

## How to measure

- Determine and quantify all types of crops (by area and yield) and animals (by heads or places and performance) in the operation.
- Quantify all imports and exports of nutrient-containing materials, such as fertilizers, feed and agricultural produce.
- Using an established method and recognized standard values, calculate the nitrogen and phosphorus supply and demand of the operation. Correct the nitrogen balance for volatile and, if possible, for liquid losses (leaching).
- Rate the nitrogen and the phosphorus balance of the operation by comparing effective supply with demand.

## Rating

**Dark Green score:**
The nitrogen and phosphorus balances of the operation do not deviate by more than 10% from zero, that is supply and demand (imports and exports) are in balance.

**Red score:**
Major imbalances of nitrogen and/or phosphorus flows prevail over a prolonged period and as a consequence, crop yields are reduced (nutrient deficiency), or neighboring terrestrial and aquatic habitats suffer damage from eutrophication.

## Limitations

This indicator focuses on nitrogen and phosphorus, as these are the elements that most often either lack (and thus limiting yields) or cause environmental problems (most prominently, eutrophication) in primary production. The enterprise is encouraged to check for further elements that may be relevant in the enterprise's specific situation, and to calculate balances for these as well. Nutrient demand and supply have to be calculated based on standard crop demand and livestock excretion values, as well as standard nutrient contents of organic and mineral fertilizers. As most of these vary in practice, the calculated balance can only be an approximation of reality, with error margins of 10% or even more being the rule. Another reason for deviations between calculation and reality is the uncertainty of volatile and liquid nitrogen losses.

## Sources of information

**ADAS (UK).** Planet Nutrient Management Software Tools. Accessed on Sept. 2013.

**Dalgaard, T., Bienkowski, J.F., Bleeker, A., Dragosits, U., Drouet, J.L.,Durand, P., Frumau, A., Hutchings, N.J., Kedziora, A., Magliulo, V.,. Olesen, J.E., Theobald, M.R., Maury, O., Akkal, N., and Cellier, P.** 2012. Farm nitrogen balances in six European landscapes as an indicator for nitrogen losses and basis for improved management. *Biogeosciences.*

**OECD and Eurostat**. 2007. *Gross Phosphorus Balances. Handbook.*

**Roy R.N., Misra, R.V., Lesschen, J.P. and Smaling, E.M.** 2003. Assessment of Soil Nutrient Balance. *FAO Fertilizer and Plant Nutrition Bulletin.*

INDICATOR NAME

# RENEWABLE AND RECYCLED MATERIALS (E 5.1.3)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME MATERIALS AND ENERGY (E 5)
SUB-THEME MATERIAL USE (E 5.1)

## Description

Various materials that are of vital importance to the functioning of food value chains stem from non-renewable sources – for example metals, phosphorus fertilizers, fossil fuels. As many of these sources have to be considered as finite, reliance on them should be gradually reduced by reverting to renewable alternatives and recycled non-renewables. This indicator focuses on the degree of independence of the analyzed enterprise from virgin non-renewable materials.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the value chain and of all sizes whose operations depend on supply with materials of any kind.

## Unit of measurement

This indicator measures the share of total material use stemming from off-operation virgin sources.

## How to measure

» Determine and quantify all types of materials used in the operation.
» For all types of materials, determine the sources from which they are procured - renewable, recycled non-renewable, or virgin non-renewable.
» Calculate and rate the share of total material use that is procured from renewable or recycled sources. Differential weighting may be applied based on for example, the remaining global reserves of a material, or on its importance for the continuation of operations.

## Rating

**Dark Green score:**
The operation is completely independent from virgin non-renewable materials.

**Red score:**
Less than 20% of material inputs are procured from renewable and recycled sources, although it would be technically and economically feasible to achieve higher shares.

## Limitations

Classifying a particular material as renewable or non-renewable may prove challenging; for example, in the case of mixtures whose components and their origins are not all known. A further complication may result from the fact that some non-renewable materials can hardly or not at all be recycled at economically feasible cost for technological reasons (e.g. phosphorus contained in sewage sludge). For renewable materials, there is need to check, wherever possible,

whether they originate from sustainably used sources. Otherwise, there can be a risk that soil, vegetation and water resources are overused in order to supply the operation with renewable such as wood or liquid biofuels. This indicator presents serious implementation difficulties, as listing, quantifying and classification of materials is costly and requires expertise not always available in the countries where the enterprise operates.

### Sources of information

**UN Environment Programme (UNEP) and United Nations Industrial Development Organization (UNIDO)**. UN Clean Production Programmes. Accessed on Sept. 2013.

**United Nations Environment Programme (UNEP).** *Metal recycling report*. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# INTENSITY OF MATERIAL USE (E 5.1.4)

ENVIRONMENTAL INTEGRITY
MATERIALS AND ENERGY (E 5)
MATERIAL USE (E 5.1)

## Description

In addition to the replacement of virgin non-renewable by recycled and renewable materials, the material intensity of production – as a measure of eco-efficiency – should be reduced to, or kept at, a low level. This indicator pertains to the amount of materials used per unit of produce in the analyzed enterprise' operations.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the value chain and of all sizes whose operations depend on supply with materials of any kind.

## Unit of measurement

This indicator measures the change in the quantity of materials used per unit produce in the operation (excluding fuel, machinery and food, including packaging and agrochemicals) during the past 5 years.

## How to measure

» For the past five years, determine and quantify all types of materials used in the operation. Decide whether, and how to, include upstream material use and efficiency into the calculation. If there are different types of material inputs, normalize output to a common unit, such as weight or volume.
» For the same period, quantify the total amount of produce from the operation. If there are different types of produce, normalize output to a common unit, such as weight or volume.
» Calculate the material intensity of the operation by dividing material input by amount of produce and depict the trend of this value over the past five years. Take care to correct for major changes in the structure of production, for example, due to the introduction of new products.

## Rating

**Dark Green score:**
The material intensity of production per unit of produce has substantially decreased over the past five years. The percentage threshold for a "substantial" reduction of material intensity should be set and justified by internal and external experts, based on the level of material intensity (eco-efficiency) already achieved by the company at the beginning of the analyzed period.

**Red score:**
The material intensity of production per unit of produce has substantially increased over the past five years.

## Limitations

Much material use and extraction occurs upstream of the operations in agriculture-based value chains. Hence, this indicator can only depict part of the whole picture of material flows. Furthermore, the indicator does not differentiate between types of materials, although it makes a difference from an environmental perspective whether these are for example, radioactive materials or just sand. Where the necessary data are available, SAFA users are encouraged to enhance this calculation by applying differential weighting. Life Cycle Assessment (LCA) and Material Input Per Service unit (MIPS) studies may provide orientation in this regard. This indicator presents serious implementation difficulties, as material intensity measurements are costly, requiring expertise not always available in the countries where the enterprise operates.

## Sources of information

**Collaborating Centre on Sustainable Consumption and Production.** Accessed on Sept. 2013.

**European Environment Agency**. Waste and material resources. Accessed on Sept. 2013.

**United Nations Conference on Trade and Development.** 2004. *A manual for the preparers and users of eco-efficiency indicators.* Accessed on Sept. 2013.

**United Nations Environment Programme and United Nations Industrial Development Organization.** UN. Clean Production Programmes. Accessed on Sept. 2013.

**United Nations Environment Programme.** *Green Economy Report.* Accessed on Sept. 2013.

**Wuppertal Institute for Climate, Environment and Energy.** Wuppertal Institute. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# RENEWABLE ENERGY USE TARGET (E 5.2.1)

ENVIRONMENTAL INTEGRITY
MATERIALS AND ENERGY (E 5)
ENERGY USE (E 5.2)

## Description

Future generations will have less non-renewable energy sources at disposal than the current generation. To fulfill their demands, they will need to increasingly rely on renewable (and sustainable) sources of energy. Given the negative effects of the burning of fossil fuels on global climate, dependence on non-renewable energy sources should be reduced as quickly as feasible. This indicator serves to assess whether the analyzed enterprise has a formal and written plan with binding targets for replacing non-renewable sources of energy in its operations.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the supply chain and of all sizes whose operations depend on external energy inputs of any kind. In the post-harvest chain, small and medium enterprises (processors, packers and cold storage facilities) consumption has a direct effect on operational costs but availability of alternative renewable sources/costs of renewable sources of energy may limit the application of this indicator.

## Unit of measurement

This indicator asks whether the enterprise sets a target for the share of renewable and sustainable energies in the total direct energy use.

## How to measure

Determine whether the enterprise has a written plan - available to all stakeholders - that includes a measurable and binding target for the replacement of non-renewable sources of energy by renewable and sustainable ones, with exact steps that outline how these targets can be achieved within the expected time-frame.

## Rating

**Dark Green score:**
The enterprise has a written plan, available to all stakeholders, with a binding renewable energy target AND steps have been implemented towards achieving the target.

**Yellow score:**

» The enterprise has a plan with a set renewable energy target, but no steps have been made towards achieving the target; OR

» The enterprise has a renewable energy target and has implemented steps for achieving it, however this has not been put into writing; OR

» The enterprise has a plan with a set renewable energy target and steps have been made towards achieving the target, however the plan is not available to all stakeholders.

**Red score:**
When none of the above requirements have been met yet.

### Limitations

The implementation of a renewable energy plan may be hindered by the availability and price of renewable sources of energy, particularly if they are economically less competitive than non-renewable energy sources. Measures to reduce total energy use and enhance energy efficiency should thus be taken as well (see the indicator Energy-saving practices).

### Sources of information

**Global Bio-Energy Partnership.** Accessed on Sept. 2013.

**International Energy Agency (IEA).** Accessed on Sept. 2013.

**Solagro**. Agriculture, énergie. Planète. Un calculateur énergie/GES européen.

**Field to Market**. Fieldprint Calculator. Accessed on Sept. 2013.

**UN-Energy**. Energy knowledge network of the United Nations' inter-agency mechanism on energy. Accessed on Sept. 2013.

**United Nations Development Programme.** Sustainable Energy. Environment and Energy. Accessed on Sept. 2013.

**World Energy Council**. World Energy Council. Accessed on Sept. 2013.

INDICATOR NAME **ENERGY SAVING PRACTICES (E 5.2.2)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **MATERIALS AND ENERGY (E 5)**
SUB-THEME **ENERGY USE (E 5.2)**

## Description

To achieve a sustainable energy use in food and agriculture value chains, energy use will need to be reduced, preferably by enhancing energy efficiency, and the energy system needs to be reverted to renewable and sustainable energy sources. This indicator serves to check for practices that reduce the energy needs of the analyzed enterprise, both in absolute terms and per unit of produce. Note that the outsourcing of energy-intensive processes is not considered as an improvement of sustainability.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the supply chain and of all sizes whose operations depend on external energy inputs of any kind.

## Unit of measurement

This indicator measures all practices and activities that have been implemented by the enterprise to effectively reduce the energy requirements.

## How to measure

- Together with internal and, if possible, external experts, identify practices and activities with a potential to save energy and enhance energy efficiency in the enterprise' operations. Alternatively, a list of such practices may be compiled from existing sources, such as local energy consultancies or international organizations. Examples of such practices include:
  - mainstreaming principles of sustainable energy use into strategies and operations and monitoring energy use and the structure of energy supply, if possible at process level;
  - informing staff and stakeholders about ways to save energy and encouraging suggestions from staff;
  - replacing energy-intensive processes by less intensive alternatives, for example: no more air freight, shorter transport distances, reduced tillage, better isolation of buildings, more energy-efficient machinery and procedures;
  - using modern energy services that are energy-efficient and do not harm neither human health nor the environment;
  - investing into better insulation of buildings, reductions of unnecessary energy use (e.g. lighting of rooms when no one is present, overheating and overcooling), optimising processes etc.
- Identify the type, extent and effectiveness of all practices and activities implemented in the enterprise that contributed to a reduction of energy use in absolute terms, as well as an enhancement of energy efficiency per unit produce in relative terms.
- Compare the list of feasible (i.e. available and accessible) practices with the list of implemented practices and rate the share of practices that have been put into practice.

## Rating

**Dark Green score:**
All feasible energy-saving practices have already been implemented and thus, the company uses its full energy-saving potential.

**Red score:**
Less than 20% of the feasible energy saving practices has been adopted and/or less than 20% of the company's energy-saving potential has been realized.

## Limitations

Compiling the list of available energy-saving practices for the analyzed enterprise requires a rating of the feasibility and meaningfulness of numerous measures. It is recommended to involve energy experts into this process, as compiling the list requires ample experience in the field of energy management. The added benefit of having such a list is that it can be used as guidance to future energy-saving activities.

## Sources of information

**UN-Energy**. Global Bio-Energy Partnership (GBEP) Sustainability Indicators for Bioenergy. Accessed on Sept. 2013.

**Global Bioenergy Partnership.** 2011. *Sustainability Indicators for Bioenergy*. First Edition. FAO.

**Solagro.** Agriculture, énergie. Planète. Un calculateur énergie / GES européen.

**Field to Market**. Fieldprint Calculator. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# ENERGY CONSUMPTION (E 5.2.3)

ENVIRONMENTAL INTEGRITY
MATERIALS AND ENERGY (E 5)
ENERGY USE (E 5.2)

## Description

While a shift from non-renewable to renewable and sustainable source of energy will enhance the sustainability of food and agriculture value chains, enhanced energy efficiency and reduced energy use are further necessary pillars on the path to a sustainable energy system. This indicator therefore pertains to the reduction of energy use by the analyzed enterprise, preferably through enhanced energy efficiency - but not through outsourcing to other companies.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the supply chain and of all sizes whose operations depend on external energy inputs of any kind. Energy calculations normally will take into account neither human and animal work nor photosynthesis.

## Unit of measurement

This indicator measures how has the enterprise' direct energy consumption per unit of produce changed during the past five years.

## How to measure

- For the past five years, determine the types and quantities used in one year of all energy carriers (in litres, m3 or kWh). Attribute all substantial changes in energy use patterns to the practices causing them – enhanced energy efficiency, outsourcing of processes to other companies, etc.
- Calculate energy imports and exports, by accounting for example, for energy use in contractual work (i.e. energy used by others, but within the analysed production site; energy used by the analysed entity, but outside the production site).
- Multiply the net quantity used of each energy carrier with its energy density (in MJ per unit).
- Calculate net energy per unit of produce for the past five years and depict the trend over this period.
- The minimum boundaries of the assessment is the direct energy consumption on the enterprise' sites. If the enterprise can quantify indirect energy use (e.g. transport of all inputs and produce, feed production, fertilizer production, fuel for land-use change for input production) those should be included as well. If indirect energy use cannot be quantified, the main hotspot areas shall be identified and the rating should take these potential high energy-consumption areas into account.

## Rating

**Dark Green score:**
Energy use of the enterprise has constantly and substantially decreased over the past five years per unit of produce. The percentage threshold for a "substantial" reduction of energy use should be set and justified by internal and external experts, based on the level of energy efficiency already achieved by the company at the beginning of the analyzed period.

**Red score:**
Energy use per unit of produce of the enterprise has increased over the past five years.

## Limitations

Prior to calculating this indicator, a decision on the scope of the calculation will need to be taken; for example, whether primary or final energy will be considered. If primary energy is to be calculated, this will require data on conversion efficiencies. A major challenge in calculating and rating a score for this indicator will arguably concern the attribution of changes of energy use patterns to their causes, and the evaluation of these causes. However, this step is necessary to prevent the mere outsourcing of energy-intensive processes from being rated as enhancing sustainability.

## Sources of information

**Field to Market**. Fieldprint Calculator. Accessed on Sept. 2013.

**Global Bio-Energy Partnership.** Accessed on Sept. 2013.

**International Energy Agency.** Accessed on Sept. 2013.

**Solagro**. Agriculture, énergie. Planète. Un calculateur énergie/GES européen.

**UN-ENERGY**. Energy knowledge network of the United Nations' inter-agency mechanism on energy. Accessed on Sept. 2013.

**United Nations Development Programme**. Sustainable Energy. Environment and Energy. Accessed on Sept. 2013.

**World Energy Council**. Accessed on Sept. 2013.

INDICATOR NAME **RENEWABLE ENERGY (E 5.2.4)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **MATERIALS AND ENERGY (E 5)**
SUB-THEME **ENERGY USE (E 5.2)**

## Description

Future generations will have less non-renewable energy sources at disposal than the current generation. To fulfill their demands, they will need to increasingly rely on renewable (and sustainable) sources of energy. Given the negative effects of the burning of fossil fuels on global climate, dependence on non-renewable energy sources should be reduced as quickly as feasible.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises at all levels of the supply chain and of all sizes whose operations depend on external energy inputs of any kind. Energy calculations normally will take into account neither human and animal work nor photosynthesis. In the post-harvest chain, small and medium enterprises (processors, packers and cold storage facilities) consumption has a direct effect on operational costs but availability of alternative renewable sources/costs of renewable sources of energy may limit the application of this indicator.

## Unit of measurement

This indicator measures the share of the enterprise's total energy use stemming from renewable sources and practices that do not degrading ecosystems or cause social disruptions.

## How to measure

- Determine the types and quantities used in one year of all energy carriers (in litres, m3 or kWh).
- Identify the origin of each of the used energy carriers. Do they originate from renewable and sustainable sources? The following energy carriers cannot be considered sustainable: coal/fuel oil and conventional fossil fuels (e.g. diesel, gasoline, Liquid Petrolum Gas).
- Calculate energy imports and exports, by accounting, for example, for energy use in contractual work (energy used by others, but within the analysed production site; energy used by the analysed entity, but outside the production site).
- Multiply the net quantity used of each energy carrier with its energy density (in MJ per unit).
- Calculate the share of renewable and sustainable energy carriers over total net energy use.

## Rating

**Dark Green score:**
The enterprise is completely independent from non-renewable and non-sustainable sources carriers of energy.

**Red score:**
Less than 20% of net total energy supply is procured from renewable and sustainable sources, although it would be technically and economically feasible to achieve higher shares.

## Limitations

Prior to calculating this indicator, a decision on the scope of the calculation will need to be taken; for example, whether primary or final energy will be considered. If primary energy is to be calculated, this will require data on conversion efficiencies. Today, not all operations have access to renewable and sustainable types of energy at an affordable price. As renewable energy technologies progress, the threshold for unacceptable conditions ("red" rating) should become stricter and not take into account any more the technical feasibility of renewable energy use. Checking whether an energy source is renewable will not always suffice. Where the provision of renewable energies comes at the cost of a degradation of the environment or food security (such as biofuels, under certain conditions), the energy system will not ultimately meet sustainability goals.

## Sources of information

**Field to Market**. Fieldprint Calculator. Accessed on Sept. 2013.

**Global Bio-Energy Partnership.** Accessed on Sept. 2013.

**International Energy Agency.** Accessed on Sept. 2013.

**Solagro**. Agriculture, énergie. Planète. Un calculateur énergie/GES européen.

**UN-ENERGY.** Energy knowledge network of the United Nations' inter-agency mechanism on energy. Accessed on Sept. 2013.

**United Nations Development Programme**. Sustainable Energy. Environment and Energy. Accessed on Sept. 2013.

**World Energy Council**. World Energy Council webpage. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# WASTE REDUCTION TARGET (E 5.3.1)

ENVIRONMENTAL INTEGRITY
MATERIAL AND ENERGY USE (E5)
WASTE REDUCTION AND DISPOSAL (E 5.3)

## Description

This indicator is used to assess the presence of a written plan that sets measurable and binding targets for the reduction and prevention of waste generation (in particular of hazardous wastes) by the analyzed enterprise. The waste reduction target can be phrased as a percentage or per unit of produce.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied on all levels of the value chain and is relevant for operations of all sizes that generate waste. Small-scale farms may or may not have a written waste reduction target, thus they can opt to omit this indicator.

## Unit of measurement

This indicator asks whether the operation has set a target in reducing the generation of waste, particularly of hazardous waste.

## How to measure

» Determine if the operations that generate waste, in particular hazardous waste, have been identified.
» Assess whether the operation has a written and binding plan – public and available to all stakeholders - with exact objectives, targets and timelines for waste reduction.
» If such a plan exists, check whether the operation has made oncrete steps into the implementation and fulfillment of the objectives within the expected timeframe.

## Rating

**Dark Green score:**
The operation has a written plan, available to all stakeholders, with binding waste reduction targets and steps have been implemented towards achieving the targets.

**Yellow score:**
» the operation has a plan with set waste reduction targets, but no steps have been made towards achieving the targets; OR
» the operation has waste reduction targets and has implemented steps for achieving these targets, however this has not been put into writing; OR
» the operation has a plan with set waste reduction targets, and steps have been made towards achieving these targets, however the plan is not available to all stakeholders.

**Red score:**
When none of the requirements have yet been met.

## Limitations

The practicability and sufficiency of the waste reduction plan should be assessed by external experts. This assessment will inevitably include some degree of subjectivity, as the technical and economic feasibility of reduction options can be rated differently.

## Sources of information

**Air and Waste Management Association**. Accessed on Sept. 2013.

**OECD**. 2007. *Guidance manual on environmentally sound management of waste*. OECD.

**The Basel Convention Controlling Transboundary Movements of Hazardous Wastes and their Disposal**. Accessed on Sept. 2013.

**UNEP.** Harmful substances and hazardous wastes. Accessed on Sept. 2013.

**UNEP**. Resource kit on waste management. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# WASTE REDUCTION PRACTICES (E 5.3.2)

ENVIRONMENTAL INTEGRITY
MATERIALS AND ENERGY (E 5)
WASTE REDUCTION AND DISPOSAL (E 5.3)

## Description

The generation of wastes and in particular of hazardous wastes creates disposal problems that can cause social problems (health risks, noxious odors), environmental pollution (leaching from inappropriate disposal, gaseous emissions) and economic damage (cost of disposal and rehabilitation). Therefore, waste generation should be reduced to the minimum in value chains.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that generate waste. In the post-harvest chain, responsible management of waste is implemented through good agricultural and manufacturing practices.

## Unit of measurement

This indicator measures all practices and activities that have been implemented to effectively reduce the quantities of, and hazards derived from, waste generated by an enterprise' operations.

## How to measure

- Together with internal and, if possible, external experts, identify practices and activities with a potential to reduce waste generation, in particular the generation of hazardous wastes. Alternatively, a list of such practices may be compiled from existing sources. As a general principle, apply the "waste hierarchy" by giving preference to the measures at the top of the hierarchy:
  - reduce - minimize waste generation, for example by "zero waste" strategies and eco-efficient processes;
  - reuse - utilize by-products and establish cascading material flows;
  - recycle - reprocess waste for further use;
  - recover - generate energy from the remaining waste using a variety of technologies;
  - dispose of remaining waste in a safe and clean manner.
- Identify the type, extent and effectiveness of all practices and activities implemented in the enterprise that contributed to waste reduction per unit produce and a reduction of the share of hazardous wastes.
- Compare the list of feasible with the list of implemented practices and rate the share of practices that have been put into practice.

## Rating

**Dark Green score:**
All feasible practices to reduce waste generation have already been implemented or all of the enterprise' operations are "zero-waste" operations.

**Red score:**
Less than 20% of the feasible practices have been implemented, or less than 20% of the company's waste reduction potential has been tapped.

## Limitations

Compiling the list of available waste reduction practices requires an assessment of the feasibility and meaningfulness of numerous measures. It is recommended to involve waste management experts into this process, as compiling the list requires ample experience and a good overview of available technologies. The added benefit of having such a list is that it can serve as guidance to future waste reduction efforts. Determining waste quantities may prove difficult where inappropriate disposal practices prevail, such as dumping into the ocean.

## Sources of information

**Air and Waste Management Association**. Accessed on Sept. 2013. AandWMA Webpage.

**European Environment Agency**. Waste and material resources. Accessed on Sept. 2013.

**OECD**. 2007. *Guidance manual on environmentally sound management of waste.*

**Stockholm Environment Institute**. Long range Energy Alternatives Planning System (LEAP). Accessed on Sept. 2013.

**The Basel Convention Controlling Trans boundary Movements of Hazardous Wastes and their Disposal**. Accessed on Sept. 2013.

**UNEP**. Harmful substances and hazardous wastes. Accessed on Sept. 2013.

**UNEP.** Resource kit on waste management. Accessed on Sept. 2013.

**United Nations Environment Programme and United Nations Industrial Development Organization**. UN Clean Production Programmes. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# WASTE DISPOSAL (E 5.3.3)

ENVIRONMENTAL INTEGRITY
MATERIALS AND ENERGY (E 5)
WASTE REDUCTION AND DISPOSAL (E 5.3)

## Description

If wastes and in particular, hazardous waste, are not properly disposed of, this can cause social problems (health risks, noxious odors), environmental pollution (leaching from inappropriate disposal, gaseous emissions) and economic damage (cost of disposal and rehabilitation). Therefore, besides waste reduction, safe waste disposal is a foundation of sustainable production in value chains.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that generate waste.

## Unit of measurement

This indicator measures the amount of solid waste generated by the enterprise that is segregated, stored and treated, such that it is rendered non-hazardous to humans and environment at the point of release. The scope of this indicator includes biodegradable and recyclable materials, including crop residues, plastics, cardboard, etc. that are composted, re-used or recycled.

## How to measure

- Identify all types of wastes, with their respective quantities, that are generated in the enterprise' operations.
- For each of these waste categories, describe in detail how they are stored, treated and disposed of. If waste of the same category is treated in different ways, for example at different production sites, focus on the worst type of treatment.
- For each waste category, rate whether the way it is stored, treated and disposed of does sufficiently reduce risks to human and environmental health. Whether practices are deemed acceptable or not should be decided together with concerned stakeholders and/or waste management experts.

## Rating

**Dark Green score:**
The waste storage, treatment and disposal practices of the enterprise pose no threat to the health of humans and ecosystems.

**Red score:**
The waste storage, treatment and disposal practices of the enterprise cause unacceptable or even illegal risks to the health of humans and ecosystems.

## Limitations

Determining waste quantities may prove difficult where inappropriate disposal practices prevail, such as dumping into the ocean. Weighting of waste categories by their hazardousness is desirable, although this might be complicated to apply where comprehensive information is necessary on issues such as aquatic eco-toxicity, terrestrial eco-toxicity, acute and chronic toxicity to humans and the persistency of substances in the environment. The reduction of waste contributes directly to lower costs for materials, processing and disposal but external support is usually needed in order to have access to means for disposal. Inappropriate disposal practices may occur in the absence of official or private legal disposal channels, which is very common in developing countries.

## Sources of information

**Air and Waste Management Association**. Accessed on Sept. 2013.

**European Environment Agency**. Waste and material resources. Accessed on Sept. 2013.

**International Maritime Organization.** 1972. *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*. London.

**International Maritime Organization.** 1973. *International Convention for the Prevention of Pollution from Ships (Marpol).*

**OECD**. 2007. *Guidance manual on environmentally sound management of waste*.

**The Basel Convention Controlling of Trans boundary Movements of Hazardous Wastes and their Disposal**. Accessed on Sept. 2013.

**UNEP**. Harmful substances and hazardous wastes. Accessed on Sept. 2013.

**UNEP**. Resource kit on waste management. Accessed on Sept. 2013.

**United Nations Environment Programme and United Nations Industrial Development Organization.** UN Clean Production Programmes. Accessed on Sept. 2013.

INDICATOR NAME

# FOOD LOSS AND WASTE REDUCTION (E 5.3.4)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME MATERIALS AND ENERGY (E 5)
SUB-THEME WASTE REDUCTION AND DISPOSAL (E 5.3)

## Description

The topic of this indicator relates to food losses that occur during production, post-harvest and processing operations, as well as food waste that occurs at marketing and consumer level.

## Relevance to enterprise type and supply chain levels

This indicator is to be applied at all levels of the value chain and is relevant for operations of all sizes that produce or handle food.

## Unit of measurement

This indicator measures the share of food that is lost or wasted in the enterprise' operations and the share of food that is reused (e.g. charities, feed), recycled (e.g. compost) or recovered (e.g. bioenergy).

## How to measure

- Quantify the total amount of food that is produced and handled in the enterprise' operations.
- For each food item, quantify or estimate the share that is lost or wasted while the food is produced or handled in the operations. This includes avoidable and unavoidable food wastage due to: insufficient crop protection, incomplete harvest, improper storage, improper processing, mispackaging, inappropriate carriers for food transportation and wasteful marketing practices. If feasible, also estimate the share of food that is wasted at other levels of the value chain as a (at least partial) consequence of the company's practices. For example, when a food processing company only buys certain potato or vegetable varieties because these are easier to process, even though these varieties are more susceptible to disease (and thus loss in the field are higher) than with other varieties. Another example may be of fish traders in developing countries who do not always have enough ice to maintain fish quality while carrying it from producers to markets, processors or other traders.
- For each food item, quantify or estimate the shares of otherwise "lost" material that are put to another use, such as donation to charities, use as animal feed or as a source of compost or energy. Subtract these quantities from the "lost" quantities determined in the previous step to arrive at those quantities that are definitely lost.
- Aggregate and rate the share of food lost and wasted for the whole enterprise.

## Rating

**Dark Green score :**
Food loss and waste do not exceed an inevitable minimum over the entire sphere of influence of the analyzed enterprise; where losses cannot be prevented, all concerned food is put into use via other channels (e.g. charities, feed, compost, bioenergy).

**YELLOW score:**
The enterprise has set a target for food wastage reduction and invests in food wastage reduction measures.

**Red score:**
Food loss and waste in the sphere of influence of the enterprise have increased over the past years OR the share of loss and waste is higher than usual in the same sector and region, and the enterprise has taken no action to put these into use via other channels.

## Limitations

Both food loss and food waste can be very difficult to quantify, as there usually are no "control treatments" where no such losses and wastes occur. Attributing food loss and waste to a company is a further challenge, as for example methods of packaging and conservation interact with consumer habits, as do preferences of food companies for certain varieties and the ability of farmers to protect these particular varieties from pests and diseases.

## Sources of information

**Ababouch L.** 2005. World inventory of fisheries. Reduction of post-harvest losses. Issues Fact Sheets. *In FAO Fisheries And Aquaculture*

**FAO and Messe** Düsseldorf. SAVE Food Initiative. Accessed on Sept. 2013.

**FAO**. *Training Manuals. Prevention of post-harvest food losses*. Accessed on Sept. 2013. (*available at* www.fao.org/docrep/x0039e/x0039e00.htm *and* www.fao.org/docrep/T0073E/T0073E00.htm)

**FAO.** 2013. *Food Wastage Footprint. Summary Report*. Natural Resources Management and Environment Department, Rome.

**FAO**. Sustainability Pathways – Food Wastage Footprint. Accessed on Sept. 2013.

**Grolleaud, M.** 2002. *Post-harvest losses: discovering the full story*. Agriculture and Consumer Protection Department FAO.

**Gustavsson J., Cederberg, C., Sonesson, U., van Otterdijk, R. and Meybeck, A.** 2011. *Global food losses and food waste. Extent, causes and Prevention*. The Swedish Institute for Food and Biotechnology (SIK) for FAO.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# ANIMAL HEALTH PRACTICES (E 6.1.1)

ENVIRONMENTAL INTEGRITY
ANIMAL WELFARE (E 6)
ANIMAL HEALTH (E 6.1)

## Description

Animal health is a state of physical, sentience and group well-being. For the sake of simplicity, it can also be understood as the absence of illness and injury. This indicator serves to check whether practices and activities have been implemented that support animal health and that reduce the need for veterinary treatments, as well as unwanted animal losses.

## Relevance to enterprise type and supply chain levels

This indicator is relevant to all enterprises that keep and use animals. This includes livestock kept on farms, fish in aquaculture, invertebrates such as lobsters, bees and silkworms, but also laboratory animals and watchdogs kept to guard factories. The scope of the indicator includes all phases of the animals' life on which the analyzed enterprise has influence, from birth or hatching to killing. If the performance indicator for the sub-theme Health has been calculated, it will not be necessary to apply this indicator.

## Unit of measurement

This indicator focuses on all activities and practices that have been implemented to effectively promote the health of animals, while reducing the use of veterinary drugs and preventing animal losses due to disease and injuries.

## How to measure

- Determine the total live weight or number of animals kept within the enterprise' sphere of influence. Ideally, animals are segregated into categories, for instance according to species and age.
- For each animal category and phase of life, list all relevant practices and activities that were implemented to promote animal health in an integrated manner. It is recommended to involve external experts and stakeholders in this process. Examples of beneficial practices include:
  - regular and professional monitoring of animal health, including written records;
  - animal breeding and selection based on criteria that include resistance to, and tolerance of, diseases, robustness, adaptation to climate and topography, longevity, fertility, etc.;
  - preventive measures, such as quarantine, separation of groups, recommended vaccinations and precautions that prevent the spreading of diseases (e.g. no access to stables, overalls and overshoes).
- Calculate the share of the concerned animal population that benefits from practices which promote animal health in an integrated manner. For this calculation, a decision on weighting will be needed – by heads, categories, livestock units, etc.

## Rating

**Dark Green score :**
All animals in the company's sphere of influence benefit from integrated health-promoting measures.

**Red score**
Although substantial health problems prevail, less than 20% of the concerned animals benefit from measures to promote animal health in an integrated manner.

## Limitations

There is no direct metric of animal health in a comprehensive sense, as the physical and "mental" health of an individual creature is a complex phenomenon. Partly for this reason, it can be difficult to determine the effects of health-promoting measures with certainty. For some measures, including some vaccinations, there is disagreement as to whether they are necessary.

## Sources of information

**Codex Alimentarius International Food Standards**. Veterinary Drug Residues in Food. FAO/WHO.

**FAO**. Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES). Accessed on Sept. 2013.

**FAO**. Global Animal Disease Information System (EMPRES-i). Accessed on Sept. 2013.

**FAO**. Livestock and Animal health. Agriculture and Consumer Protection Department. Accessed on Sept. 2013.

**Welfare Quality®**. Assessment Protocols.

**World Organisation for Animal Health**. OIE Webpage. Accessed on Sept. 2013.

INDICATOR NAME **ANIMAL HEALTH (E 6.1.2)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **ANIMAL WELFARE (E 6)**
SUB-THEME **ANIMAL HEALTH (E 6.1)**

## Description

Animal health is a state of physical, sentience and group well-being. For the sake of simplicity, it can also be understood as the absence of illness and injury.

## Relevance to enterprise type and supply chain levels

This indicator applies on the primary production level whenever animals are kept on or by the operations. Marine fish and wild harvest/capture of animals are out of the scope of this indicator. This indicator is relevant to operations of all sizes.

## Unit of measurement

This indicator measures the share of animals that are healthy and have not required any medical treatment against illness or disease in the enterprise' operations during the analyzed time-frame. This includes aquaculture fish, crustaceans, bees, silkworms, livestock and others. All phases of animal life, from birth to death, are relevant.

## How to measure

- Calculate the shares of ill and injured, treated and dead animals per animal type. Rate these shares by comparison with benchmark values. The benchmark values should be adapted to the type of animal and the geographical region.
- Decide on whether and how to aggregate and to weight animal types, for example by calculating livestock units. If more than one batch of an animal type is reared in one year (e.g. in pig fattening), decide whether to count animal heads or places. Decide on whether and how to weight animal diseases, injuries and death.
- For additional guidance on calculating the health of animals, refer to the references listed below.

## Rating

**Dark Green score:**

- Preventive measures are preferred and no synthetic growth promoters (including hormones) were used; AND
- Injury and disease rate was minimum - lower than benchmark values if available, or lower than during last SAFA assessment; AND
- Regular check-up, if feasible, by professional animal healthcare.

**Red score:**

Use of forbidden veterinary products and synthetic growth promoters and/or inhumane treatment (including hormones).

## Limitations

There is no direct metric of animal health in a comprehensive sense, as the physical and mental health of an individual creature is a complex phenomenon. The indicator takes the absence of diseases, injuries and high mortality rates as a proxy for animal health. It is, however, possible that healthy animals were treated prophylactically.

## Sources of information

**Codex Alimentarius International Food Standards.** Veterinary drugs. *In Veterinary Drug Residues in Food.* Accessed on Sept. 2013.

**FAO.** Livestock and Animal health. *In Animal Production and Health.* Agriculture and Consumer Protection Department. Accessed on Sept. 2013.

**Welfare Quality® .** Assessment Protocols. Accessed on Sept. 2013.

**World Organization for Animal Health**. Accessed on Sept. 2013.

INDICATOR NAME

# HUMANE ANIMAL HANDLING PRACTICES (E 6.2.1)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME ANIMAL WELFARE (E 6)
SUB-THEME FREEDOM FROM STRESS (E 6.2)

## Description

This indicator serves to check whether practices are in place which ensure that animals can enjoy the "five freedoms", namely: freedom from hunger and thirst; from discomfort; from pain, injury and disease; from fear and distress; and freedom to express normal behavior.

## Relevance to enterprise type and supply chain levels

This indicator is relevant to all enterprises that keep and use animals. This includes livestock kept on farms, fish in aquaculture, invertebrates such as lobsters, bees and silkworms, but also laboratory animals and watchdogs kept to guard factories. The scope of the indicator includes all phases of the animals' life on which the analyzed enterprise has influence, from birth through hatching to slaughter/death.

## Unit of measurement

The indicator focuses on all practices and activities that have been implemented to effectively reduce the suffering and risk of injury of animals during all phases of their life, including transport and killing.

## How to measure

- Determine the total live weight or number of animals kept within the enterprise' sphere of influence. Ideally, animals are segregated into categories, for instance according to species and age, because their needs will be different.
- For each animal category and phase of life: determine whether they suffer from stress; and list the practices and activities that were implemented to reduce the level of stress of concerned animals. It is recommended to involve external experts and stakeholders in this process. Examples of best practices include:
  - more access to pasture for livestock;
  - improved weather protection for livestock on pasture;
  - improved climate in stables (e.g. fresh air, enough light, cleanliness);
  - sufficient contact with conspecifics, stable size of animal groups;
  - environmental enrichment for animals;
  - decent slaughtering practices;
  - low stocking densities for farmed fish.
- Calculate the share of the concerned animal population that benefits from practices which reduce their level of stress. For this calculation, a decision on weighting will be needed – by heads, categories, livestock units, etc.

## Rating

**Dark Green score:**
All animals in the enterprise's sphere of influence that are affected by stress can benefit from measures taken to reduce the level of stress.

**Red score:**

» Inhumane and illegal treatment of animals, such as butchering with a dull knife, or unnecessarily long transport without sufficient space and water; OR

» Practices to reduce the level of stress are implemented for less than 20% of the concerned animals.

## Limitations

There is no direct metric of animal health and freedom from stress in a comprehensive sense, as the physical and mental health of an individual creature is a complex phenomenon. The indicator takes the absence of diseases, injuries and high mortality rates as a proxy for animal health. It is, however, possible that healthy animals were treated prophylactically.

## Sources of information

**Agroscope.** Centre for Proper Housing. The Federal Veterinary Office (FVO). Switzerland. Accessed on Sept. 2013.

**Farm Animal Welfare Committee**. The five freedoms. Accessed on Sept. 2013.

**Welfare Quality®**. Assessment Protocols. Accessed on Sept. 2013.

INDICATOR NAME

# APPROPRIATE ANIMAL HUSBANDRY (E 6.2.2)

DIMENSION ENVIRONMENTAL INTEGRITY
THEME ANIMAL WELFARE (E 6)
SUB-THEME FREEDOM FROM STRESS (E 6.2)

## Description

The indicator focuses on the fifth of the "five freedoms", namely the freedom to express normal behavior. This freedom mainly pertains to ethological aspects. The other four freedoms are of a physiological nature and are captured by the indicator Freedom from physiological stress (E 6.2.3).

## Relevance to enterprise type and supply chain levels

This indicator is relevant to all enterprises that keep and use animals. This includes livestock kept on farms, fish in aquaculture, invertebrates such as lobsters, bees and silkworms, but also laboratory animals and watchdogs kept to guard factories. The scope of the indicator includes all phases of the animals' life on which the analyzed enterprise has influence, from birth, through hatching to slaughter/death.

## Unit of measurement

The indicator measures the share of animals that have the possibility to behave according to their specific needs. This can for example include permanent access to open air, enough space to roam around, appropriate feed to meet nutritional and behavioural needs, and at least visual contact with conspecifics (of the same species).

## How to measure

- Determine the total number of animals kept within the enterprise' sphere of influence. Ideally, animals are segregated into categories, for instance according to species and age, because their needs will be different.
- For each animal category and phase of life, carefully investigate possibilities for species- and age-specific behavior. This will ideally include a sufficiently long observation of animals that follows an established protocol.
- For each animal category and phase of life, rate the level of species-appropriateness using an established protocol, such as the Welfare Quality protocols. It is recommend to involve external experts and stakeholders in this process.
- Calculate the share of the total animal population that is free to exercise their natural behavior. For this calculation, a decision on weighting will be needed – by heads, categories, livestock units, etc.

## Rating

**Dark Green score:**
All animals in the enterprise' sphere of influence have the possibility to behave according to their specific needs

**Red score:**
20% (or less) of animals in the enterprise' sphere of influence do not have the possibility to behave according to their specific needs.

## Limitations

Knowledge about the needs, perceptions and sentiments of animals is incomplete. Therefore, there is need to rely on proxies and sometimes on assumptions when it comes to assessing the level of stress from which animals may suffer. A professional assessment of species-appropriateness has to rely on observations of animal behavior. Since such observations can be very time-consuming, one may have to opt for shorter observation periods and indirect metrics (e.g. body condition, lesions, etc.). An enterprise's sphere of influence can sometimes be hard to delineate. For example, pig fattening operations often buy piglets from breeders. While it is the breeder who castrates boars and docks the pigs' tail, it may be considered a joint responsibility of breeder and fattener to develop production systems that only require a minimum of such alterations.

## Sources of information

**Agroscope.** Centre for Proper Housing. The Federal Veterinary Office (FVO). Switzerland. Accessed on Sept. 2013.

**Farm Animal Welfare Committee.** The five freedoms. Accessed on Sept. 2013.

**Federal Veterinary Office of Switzerland**. Animal Welfare. Accessed on Sept. 2013.

**Welfare Quality®.** Assessment Protocols. Accessed on Sept. 2013.

**World Organization for Animal Health**. Standards on transport and killing of animals. Accessed on Sept. 2013.

INDICATOR NAME **FREEDOM FROM STRESS (E 6.2.3)**
DIMENSION **ENVIRONMENTAL INTEGRITY**
THEME **ANIMAL WELFARE (E 6)**
SUB-THEME **FREEDOM FROM STRESS (E 6.2)**

## Description

The five freedoms define an ideal state, in which all animals kept by humans are free from hunger and thirst, from discomfort, from pain, injury and disease and from fear and distress, and free to express normal behavior. The indicator focuses on the first four of these freedoms, while the last one is captured by the indicator Species-appropriate husbandry (E 6.2.2).

## Relevance to enterprise type and supply chain levels

This indicator is relevant to all enterprises that keep and use animals. This includes livestock kept on farms, fish in aquaculture, invertebrates such as lobsters, bees and silkworms, but also laboratory animals and watchdogs kept to guard factories. The scope of the indicator includes all phases of the animals' life on which the analyzed enterprise has influence, from birth, through hatching to killing.

## Unit of measurement

The indicator measures the share of animals that have sufficient freedom to move around, live free of pain, discomfort and distress all the time, during all phases of their life, including during transport and slaughter. For processing/marketing enterprises, the indicator measures the share of animals (or animal products) that the enterprise purchases which have had sufficient freedom to move around, live free of pain**,** discomfort and distress all the time, during all phases of their life, including during transport and slaughter.

## How to measure

- Determine the total number of animals kept within the enterprise' sphere of influence. Ideally, animals are segregated into categories, for instance according to species and age, because their needs and their susceptibility to stress are different.
- For each animal category and phase of life, carefully investigate the way they are kept, including: feed and water supply; space, aeration, lighting and noise in the stables; technical alterations, etc.
- For each animal category and phase of life, rate the level of stress using an established protocol, such as the Welfare Quality protocols. It is recommended to involve external experts and stakeholders in this process.
- Calculate the share of the total animal population that does not suffer from any serious (physiologically effective) and prolonged stress. For this calculation, a decision on weighting will be needed – by heads, categories, livestock units, etc.

## Rating

**Dark Green score:**

» All animals in the enterprise' sphere of influence live all of their life without experiencing serious and prolonged stress; AND

» Routine tail docking, teeth clipping, castration, de-horning and comparable practices are avoided.

**Red score:**

» Inhumane and illegal treatment of animals, such as butchering with a dull knife or unnecessarily long transport without sufficient space and water; OR

» Use of routine tail docking, teeth clipping, castration, de-horning and comparable practices.

## Limitations

Knowledge about the needs, perceptions and sentiments of animals is incomplete. Therefore, there is need to rely on proxies and sometimes on assumptions when it comes to assessing the level of stress from which animals may suffer. An enterprise' sphere of influence can sometimes be hard to delineate. For example, pig fattening operations often buy piglets from breeders. While it is the breeder who castrates boars and docks the pigs' tail, it may be considered a joint responsibility of breeder and fattener to develop production systems that only require a minimum of such alterations.

## Sources of information

**Farm Animal Welfare Committee**. The five freedoms. Accessed on Sept. 2013.

**Federal Veterinary Office of Switzerland**. Animal Welfare. Accessed on Sept. 2013.

**Welfare Quality®**. Assessment Protocols. Accessed on Sept. 2013.

METHODOLOGICAL SHEETS

# ECONOMIC RESILIENCE INDICATORS

INDICATOR NAME **INTERNAL INVESTMENT (C 1.1.1)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **INTERNAL INVESTMENT (C 1.1)**

## Description

Investing in sustainability refers to the allocation and use of multiple resources (i.e. time, human resources, funds) to improve the enterprise performance at any of the dimensions: governance, environmental, social and economic. Improving the enterprise sustainability performance requires the commitment of the governance body and the capacity to generate change accordingly. Without proper investment allocation and oversight of this matter, it is less probable that an enterprise could make significant progress. Policies can be discussed and approved to modify and incorporate new practices to meet this aim. In this context, an enterprise establishes a system to monitor its own performance on a regular basis to be able to identify the areas of attention, improvement and oversee their evolution.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. The level of investment attributed to the development and maintenance of sustainable policies and practices might differ across enterprises, as it depends on the type of areas of attention and improvement identified specific to that enterprise.

## Unit of measurement

This indicator measures the extent to which the enterprise has invested over the last 5 years into activities and practices to improve and monitor its social, economic, environmental and governance performance.

## How to measure

» Review the enterprise's business records and the decisions taken by the governance body to check for investment practices that have been implemented in the enterprise for monitoring and improving sustainability performance. This includes action such as: improvement of employees salaries and benefits, investment in research and development, improvement of production efficiency, the implementation of practices that preserve and regenerate natural resources, the use of renewable energy, the adoption of a monitoring and evaluation system of sustainability performance, etc. Guidance to identify activities and practices can be found in the references listed below.

» Ensure that the enterprise has a practice of prioritizing the activities and practices that are revealed to be beneficial to improving social, economic, environmental and governance performance, as a result of monitoring.

## Rating

**Dark Green score:**

» A monitoring system is in place to oversee the sustainability performance of the enterprise at social, economic, environmental and governance levels; AND

» The prioritized activities and practices have targeted the improvement of the enterprise' sustainability performance; AND

» The enterprise can demonstrate progress in its sustainability performance, for example with Key Performance Indicators (KPI) during the last five years.

**Red score:**

The enterprise has not implemented any investment practice in the last 5 years aimed at monitoring and improving its sustainability performance.

## Limitations

This indicator does not measure if the activities and practices implemented have successfully monitored or improved the enterprise's sustainability performance. Even when investing in sustainability does not guarantee effectiveness, or actual progress in sustainability, it should be taken as an initial intervention to improve operations.

## Sources of information

**Committee on Sustainability Assessment (COSA).** Accessed on Sept. 2013.

**Finance Alliance for Sustainable Trade**. FAST Shared Impact Assessment and Measurement Toolbox, version 1.0. Document FAST SIAMT includes a full list of indicators. Accessed on Sept. 2013.

**International Organization for Standardization**. 2010. *ISO 26000:2010 Guidance on social responsibility.*

**Pimbert M.** 2012. Fair and Sustainable Food Systems: from vicious cycles to virtuous circles. *International Institute for Environment and Development (IIED) briefing papers.*

**Sustainable Agriculture Initiative (SAI) Platform.** Sustainability Performance Assessment (SPA) Accessed on Sept. 2013.

INDICATOR NAME **COMMUNITY INVESTMENT (C 1.2.1)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **COMMUNITY INVESTMENT (C 1.2)**

## Description

Investing in a community refers to the allocation and use of multiple resources (i.e. time, human resources, funds) to address and contribute to resolve a community need(s). The enterprise' micro-environment includes the community where operations are taking place, so there is an organic relationship between the enterprise' activities and investments, and the community' sustainable development. Whether directly or indirectly, the enterprise's operations have an influence in the community.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. In order to have a complete assessment of an enterprise sustainability performance, it is necessary to review how its activities and investments are affecting the community(ies) that are within its realm of influence. For instance, the operations of a large enterprise in a given community overseas might not affect the good quality of the water resources that serve the community, as investments were made in waste management control. For small-scale producers, this indicator is also applicable. For instance, a group of farmers in a given community have decided to contribute to resolve the water scarcity problem by reforesting some hectares of land that are currently used for cultivation, and by establishing rainwater capture and storage systems.

## Unit of measurement

This indicator measures the extent to which the enterprise' investments have contributed to meet community needs. Successful community investment does not compromise efficient use of resources, welfare, or fair and transparent relationships with the community, stakeholders and personnel.

## How to measure

- Interview owners and management to ensure that they can list the social, economic, cultural, technical, environmental, organizational or other needs from the community to which the enterprise's activities and investments contribute to address and meet.
- The staff, management and owners should be able to describe the way these activities and investments have been implemented in relation to the management of resources and the environment, including soil, water, air, minerals, plants, animals and atmospheric gases.
- The staff, management and owners should be able to describe the way these activities and investments have been implemented in relation to the enterprise' relationships and interactions with the community (including stakeholders in the industry and region), as well as employees and other individuals affected by the operations.

## Rating

**Dark Green score:**

- The investments and activities implemented by the enterprise address and meet at least some identified community need; AND
- There are records of multiple positive socio-economic and environmental impacts as a result of the enterprise' investments and activities implemented; AND
- There is not a disproportionate or over-consumption of resources (i.e. financial, energy, natural) in the investments made; AND
- Community beneficiaries acknowledge the effective and positive contribution of the enterprise to the community' sustainable development.

**Red score:**

- The investments or activities implemented by the enterprise increase the community needs either directly or indirectly; OR
- There are records of negative socio-economic or environmental impacts as a result of the enterprise' investments or activities implemented; OR
- The investments or activities jeopardize community(ies) by over-consumption of resources (i.e. financial, energy, natural).

## Limitations

This indicator does not determine what sustainable development of a community means explicitly; rather it provides some guidelines to facilitate the assessment of the contribution of the enterprise' investments to sustainable development of a community. The indicator does not provide guidelines to identify when resources are being over-consumed, as it is context-specific.

## Sources of information

**IFC**. CommDev. Enhancing benefits to communities. International Finance Corporation. World Bank Group.

INDICATOR NAME **LONG TERM PROFITABILITY (C 1.3.1)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **LONG RANGING INVESTMENT (C 1.3)**

## Description

Financial sustainability is a major pillar to ensure the enterprise' operations and growth in the long-term and over its life cycle. Investing to generate long-term profitability refers to the financial resources that the enterprise has allocated and applied to strengthen its capacity to generate and increase profits over the long term. This may include investments such as: research on product development, training programmes for selected employees, acquisition of resources (e.g. land or businesses, equipment and facilities), the design and implementation of a marketing strategy, etc. The enterprise needs to invest for long-term solvency and profitability in order to remain itself in business and to enhance its potential and growth. Investing to strengthen its capital structure (i.e. financial, natural, physical, human and social), as well as its competitive advantage in the market place are needed to guarantee a sound economic performance, financial responsibility and long-term success. Investments that aim to generate profits in the short-term and to meet only the existing financial needs and obligations do not necessarily guarantee business profitability of the enterprise over its life cycle; short-term business decisions do not necessarily ensure the enterprise' long-term viability.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations at all levels of the food chain. In small and medium holdings, it may be difficult to foresee long-term profitability when uncertainties and vulnerability is felt in the short-term.

## Unit of measurement

This indicator measures whether the enterprise has made investments, or operates in a way that aim to establish and reinforce the conditions to maintain, generate and increase the enterprise profits in the long-term.

## How to measure

» Review the latest cash-flow statement referring to the enterprise' operating, financial and investing activities, and interview management and ownership about investment practices.
» Identify all investments or management practices that have been directed to generate profits, over a period of at least a year and over a period of 5 years or more.

Remark on the long-term definition: under accountability terms and definitions, long-term refers to a period of over 12 months; and short-term refers to a period of up to 12 months. In the cases to which this indicator refers to, it is probable that, according to the context and business nature of the enterprise, long-term might be considered as from over 5 or 7 years or more.

## Rating

**Dark Green score:**

» The enterprise has done investments that aim to generate profits over a period of at least a year; AND

» The enterprise has done investments that aim to generate profits over a period of at least five years; AND

» The enterprise has done investments to generate profits in the short-term and has met completely its financial needs and obligations of the current year.

**Red score:**

» The enterprise has not done any investment that aim to generate profits over a period of at least a year; OR

» The enterprise has not done any investment that aim to generate profits over a period of at least five years; OR

» The enterprise invests only to maximize its profit in the short term.

## Limitations

This indicator does not specify what long-term is as a standard basis, as it depends on many factors, such as the business type of the enterprise and its context. However, it provides a reference point. Investing for long-term profitability does not ensure the business viability and growth of the enterprise during its entire life cycle, as other factors might affect its performance, for instance, the enterprise' governance and management, external policies and regulations and market forces.

## Sources of information

**Berman K., Knight J. and Case J.** 2008. Profitability ratios: the higher, the better (mostly): the five you need to know. *Harvard Business Press Chapters.*

**Canadian Agri-Food Policy Institute**. 2009. *Measuring Farm Profitability and Financial Performance.* CAPI. Ottawa.

**Department for International Development**. 1999. *Sustainable Livelihoods Guidance Sheets Performance.* DFID, UK.

**IFC.** SME Toolkit, Build your Business. International Finance Corporation. World Bank Group. Accessed on Sept. 2013.

INDICATOR NAME **BUSINESS PLAN (C 1.3.2)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **LONG RANGING INVESTMENT (C 1.3)**

## Description

A long-term business plan is a document that describes the current status of a business, its aims and objectives, and sets out the strategy leading to their achievement over a minimum 5 years period. The structure of a business plan contains several sections including: product and customer descriptions, marketing strategy, operational plan and a financial section. The marketing plan contains a market analysis describing: the market as a whole, industry trends and target market in terms of customer profile and market potential; a competitive analysis of the threats and risks the enterprise could face and a market strategy outlining sales terms, pricing policy, selling, distribution and customer service. The operational plan looks at the development and production of products or services. The financial plan takes into account: the financial history, financial projections (financial statements (balance sheet, income statement and cash flow) and the potential returns for investors. The role of a business plan is to: provide an up-to-date assessment of the enterprise' growth path, including major achievements; present the strategies moving forward with the remaining objectives in a timeline; show pro-forma financial statements with realistic financial assumptions for a minimum 5 year period; clearly present the funds needed to be raised, and how they will be implemented. Depending on its perspective, the business plan may be an organizing tool that outlines the enterprise' strategy to improve performance, or a selling vehicle used to raise capital for the development and expansion of the enterprise.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. Having a business plan is essential for entrepreneurs, regardless of their existing or intended position in the supply chain. It helps them assess their vision of the future, scrutinize each aspect of their business and address existing issues. Notwithstanding the size of the enterprise, the business plan is an essential tool. Larger enterprises use the business plan in the day-to-day management process as a decision-supporting tool that could be used to monitor and to measure the impact of each project, product or initiative. The business plan is also an essential assessment instrument for the smaller enterprise, whose survival is critically dependent on each action.

## Unit of measurement

This indicator measures whether the enterprise has a business plan or an up-to-date document articulating revenue streams, growth plan, and an operational action plan that projects the generation of financial resources for the future.

## How to measure

- Review business records, especially at the governance and management level, and check whether the enterprise has an up-to-date business plan with all of the elements.
- If so, review the business plan and check in the production, market and financial section whether the plan outlines in detail how the enterprise is planning to generate revenue streams for a minimum 5 year period.
- Review the business plan and assess its content in terms of viability and accuracy.

## Rating

**Dark Green score:**

- The enterprise has a complete and up-to-date business plan that outlines the strategy to be implemented and objectives to achieve for at least a minimum 5 year period; AND
- The business plan details and explains with accuracy a viable financial plan that presents the cash-flow projections for a minimum 5 year period and additional information, as well as regarding the way the enterprise plans to generate revenue streams to this reference period; AND
- The enterprise has implemented steps towards progressing in its long-term strategic, business and financial objectives; AND
- All the employees know the business plan, its objectives and targets, and their respective annual operating plan is designed in alignment with the business plan; AND
- While a written or otherwise documented business plan may not be in place for small-scale producers' operations, evidence of planning for the future that at least addresses the next few years is necessary. Investment in the business should be a clear and regular practice, and plans for cash-flow and profitability should be clear.

**Red score:**

- The enterprise does not have a business plan or an up-to-date document articulating revenue streams, growth plan, and an operational action plan that projects the generation of financial resources for the future; OR
- The enterprise is not making any step towards developing a business plan for its long-term strategy; OR
- The enterprise has an incomplete business plan, and does not include the objectives to achieve and the strategy to implement for a minimum 5 year period. The plan does not even include any financial projection on how the enterprise plans to generate revenue for a minimum 5 year period.

## Limitations

The fact that the enterprise has a complete business plan, it does not guarantee its full implementation and achievement of objectives. It is essential for the enterprise to have a monitoring and evaluation system in place to review and assess on a regular basis (i.e. semi-annual or annual) the progress accomplished to achieve the short and long term objectives. Furthermore, incomplete business plans can provide an unbalanced analysis and bring about erroneous conclusions that lead to wrong decisions that could cause financial loss and business collapse. Also, business plans can suffer from "narrow vision" that can limit business opportunity and growth potential.

## Sources of information

**Aquaculture and Fisheries Center**. Catfish growth - cash flow models. Financial management of aquaculture farms (example of catfish). University of Arkansas at Pine Bluff. Accessed on Sept. 2013.

**FAO.** 2002. *Business planning in aquaculture*. Rome.

**Harp R. and Tranel J.** *Agriculture Business Planning Workbook*. Colorado State University. Accessed on Sept. 2013.

**Rural Finance Learning Center.** 2005. *Plan de Negocios, Manual Basico para Micro-Empresarios Rurales.* (Document available only in Spanish). PROMER-FIDA.

**United Nations Conference on Trade and Development.** 2002. How to prepare your business plan. United Nations. New York.

INDICATOR NAME **NET INCOME (C 1.4.1)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **PROFITABILITY (C 1.4)**

## Description

Net income is a business activity index that helps effectively measure the enterprise's profitability and financial sustainability over time. This indicator is a thorough performance reporting mechanism, which spells-out the enterprise's financial viability. On one hand, it contributes to the calculation of financial ratios - among others, the profit margin and price-to-earnings - which helps establish the evolution and financial health of the enterprise. On the other hand, net income is one of the most significant financial measures, tracked constantly by owners since their return is derived from the profit generated during each reporting period. Fluctuating, as well as negative net income, may indicate the presence of diverse issues that need the close attention of the management and governance body. It is noted that net income does not indicate the amount of cash the enterprise makes because it also includes several non-cash expenses, like amortization and depreciation, and is vulnerable to aggressive accounting practices related to cost/revenue recognition.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of enterprises, at all levels of the food chain. Small-scale producers are expected to make a simple calculation of expenditures minus production-related revenues and are encouraged to adopt more sophisticated analysis of net income over time.

## Unit of measurement

This indicator measures whether the total revenue earned by the enterprise in the last five years associated with producing the goods and services sold by the enterprise exceeds the total expenses, including interests and taxes.

## How to measure

- The enterprise may already track net income. If not:
- Review the income statement of the enterprise for each year of the last five years and check for the "total revenue earned" resulting from all business activities.
- Review the income statement of the enterprise for each year of the last five years and check the "total expenses" that the enterprise has incurred, including all the operating expenses, interest, taxes and preferred stock dividends when applicable.
- Calculate the net income, as the difference between the total revenue earned and the total expenses for each year.

  The earned revenue is defined as the total revenue resulting from all business activities during a given period. Total expenses are defined as all the operating expenses, interest, taxes and preferred stocks dividends, when applicable. Clearly, negative profit (i.e. loss) is undesired, as it represents a sign of poor performance since the total revenue generated during the reporting period does not cover all the expenses incurred to create those sales.

## Rating

**Dark Green score:**

» The resulting net income is greater than 0 in each year of the last five years. Positive net income is expected in every reporting period. Temporary negative net income is not necessarily unfavorable, as in the case of seasonal crop producers where negative profits might be part of their business cycle; AND

» Net income grows from one year to the other, or within the 5-year period. Growth is calculated as follows: net income in reporting period 2, minus net income in reporting period 1, divided by net income in reporting period 1; AND

» The enterprise has capitalized with its own financial resources during the 5-year period. This could be evaluated with the following ratios: total debt, minus total assets ratio decreases in the period (short term debt + long term debt), divided by total assets; OR total debt-to-capital ratio decreases in the period (total debt (short-term/long-term) divided by shareholders' equity + total debt).

**Red score:**

» The resulting net income is 0 or below (negative) in each year of the last five years.

## Limitations

There are also other indicators that could be useful to measure profitability and complement Net Income, such as Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS), or Gross Profit Margin (GPM).

## Sources of information

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**SME Toolkit, Build Your Business**. Financial Literacy. International Finance Corporation. The World Bank Group. Accessed on Sept. 2013.

INDICATOR NAME **COST OF PRODUCTION (C 1.4.2)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **PROFITABILITY (C 1.4)**

## Description

The cost of production is an economic or accounting indicator that refers to the costs incurred by the enterprise during a given time period to acquire and transform direct materials, so as to produce and sell revenue generating products, goods and/or services. Since there is a clear connection between cost management and strong performance, different cost classification systems have been structured. Each is intended to address an opportunity for improvement for the enterprise. The unit cost of production is also used to calculate the break-even point, which is the point (price per unit of product sold) at which the total cost of production and revenue are equal, thus, the enterprise does not have a net loss or gain. The precondition of a viable enterprise is summarized as: the total cost of production must be less than the total revenue. A margin of safety of over 10 % should be the goal of all for-profit enterprises, whereas a margin of safety of between 0 – 5 % constitutes the lower limit of profitability. Non-profit companies can set the goal to attain and maintain the break-even point.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. The cost of production is a comprehensive accounting and performance reporting measure, crucial to many business decisions. Its monitoring allows enterprises to track performance, optimize production, and become more competitive. While cost control and its reduction remain the priority irrespective of the size of the enterprise, the development of competitive strategies differs. Larger enterprises (in general terms of acreage or labor force) can take advantage of economies of scale; they are also better suited to optimize their working processes through mechanization or automatization of tasks. These mechanisms drive down the production costs and render the enterprise more competitive in the market place through lower priced products. In opposition, the smaller enterprises may achieve competitive advantage through tighter cost control, as the reduced volume of their transactions affords them more visibility over the cost drivers, and the differences are detected as they occur.

## Unit of measurement

This indicator measures whether the enterprise has completed a process to determine the total cost of the products sold and per unit of production using currency, and has calculated the break-even point.

## How to measure

» Based on different cost classification systems, the total cost of production can be calculated in various ways, and the most used is derived as the sum of direct and indirect costs of production.

- Check business and accounting records and check for the cost of production, direct and indirect, of the products, goods or services produced in a given period.
- Verify if the total cost of production results of adding up the direct and indirect cost incurred in the production of the goods, products or services for the period.
- Check and verify if the cost of unit of production has been calculated as the total costs of production divided by the units of product, goods or services produced in the period.
- Check whether the enterprise has determined the break-even point for each product, goods or service.

It is noted that the direct cost of production are represented by the direct materials costs and direct manufacturing labor costs, that are directly traceable to the production of goods, products and services (i.e. purchase of seeds, fertilizers or crops to farmers). Indirect costs are those costs that cannot be directly attributed to the production expenses, although they represent an inherent part of it (i.e. the warehousing cost of the materials held in view of production, electricity cost).

## Rating

**Dark Green score:**

- The enterprise registers effectively and systematically all the costs incurred in the production of the goods, products and services for each year; AND
- The enterprise calculates the total cost of production for all the products, goods and services produced in the period; AND
- The enterprise calculates the cost per unit of production of each product, goods or service produced; AND
- The enterprise calculates the break-even point for each product, goods or service produced in the year; AND
- The correspondent employees of the accounting, production and commercial department are trained and informed on the cost of production and the break-even point of each product.

**Red score:**

- The enterprise does not record the costs of production, direct and indirect, in an effective and systematic way; OR
- The enterprise has not calculated the total cost of production of the goods, products or services produced for the period year; OR
- The enterprise has not calculated the cost per unit of production of each product, goods or service produced; OR
- The enterprise has not calculated the break-even point for each product, goods or services produced; OR
- The enterprise has not implemented any steps towards training the correspondent employees in basic accounting to calculate the cost of production and break-even point.

## Limitations

The calculation of this indicator is subject to generally accepted adaptations, but can be easily determined at any time. The accounting practices are dynamic and evolve gradually over time periods. There is no conclusive across-the-board procedure applicable to all industries.

## Sources of information

**FAO**. 1999. Production Cost. *In Economic engineering applied to the fishery industry*.

**Horhota L.** 2009. Financial analysis techniques employed in agriculture. Presented at the *International Conference on Applied Economics*.

**Iton A.** 2012. *Cost of Production Guide*. Caribbean Research and Development Institute (CARDI). Trinidad and Tobago W.I.

**Rachman B. and Saryoko A.** 2010. Break-even point and profitability analysis of rice farming through integrated crop management in Lebak district, Banten. *In the Indonesian Journal of Agriculture* 3 (2): 127-130.

INDICATOR NAME **PRICE DETERMINATION (C 1.4.3)**
DIMENSION **ECONOMIC**
THEME **INVESTMENT (C 1)**
SUB-THEME **PROFITABILITY (C 1.4)**

## Description

Price determination represents the enterprise's decision regarding the amount at which its products or services can be sold. This decision affects the revenue earned, as well as the profits generated by the enterprise, and it is closely linked with the unit cost of production. The set-up value of this measure is influenced by three major factors: customers, competitors, and costs. The amplitude of the mark-up (i.e. the difference between the selling price and the cost per unit of production) depends on the perceived quality or scarcity of the product or service, and on the revenue category of the clientele. For most products, goods and services are brought forward by the choice of a mark-up intended to gain a target rate of return on investment of: excellent (more than 50 % profit margin), very good (between 25 – 50 % profit margin), moderate (between 10 – 25 % profit margin) and little (between 5 – 10 % profit margin). A profit margin between 0 – 5 % constitutes the lower limit of profitability, or is defined as non-profitability, since at this level, the profit dissipates easily as a consequence to stochastic demand.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. Price determination depends on the type of enterprise, the goods produced and the market concentration. In the case of commodities (e.g. rice, meat, fish) it is more likely that the market sets the price. In less competitive product markets, the management team has leverage in establishing what to charge for its products, goods and services. The relevance of the price determination is to ensure that the selling price is above the break-even point and it includes a mark-up to ensure the enterprise makes a profit.

## Unit of measurement

This indicator measures whether the enterprise has considered the break-even point to negotiate the selling price with the buyer(s), using currency.

## How to measure

» Review the business and accounting records of the enterprise for a given period.
» Check for the selling price of the products, goods and services sold by the enterprise in this period.
» Compare the selling price with the break-even point of each product, goods, or services.

## Rating

**Dark Green score:**
» Those who sell the products, goods and services are aware of the break-even point and the expected profit margin to be obtained with the selling price; AND

» The full cost of unit of production is recovered, and the profit is generated through a mark-up, as the selling price results from the combination of actual costs and mark-up; AND
» There are records that reveal the enterprise' negotiation capacity to set the selling price based on the break-even point and expected profit margin.

**Red score:**

» The full cost of unit of production is not recovered; OR
» Those who are responsible for the selling of the products, goods or services don't know the break-even point of each product, or the expected profit margin; OR
» The enterprise has not implemented any steps to improve the conditions lying behind the fact that the cost of unit of production is not recovered (i.e. production efficiency, product quality, bargaining power).

### Limitations

The practice of price determination varies greatly by industry. There is no a standard for all pricing decisions because the calculation of product cost is subject to generally accepted adaptations. The profit margins are also a generic indicative as profit margins ranges could be different with a smaller scale, depending on the enterprise type of business and the type of product.

### Sources of information

**FAO**. 1997. Agricultural and Food Marketing Management. FAO Regional Office for Africa.

**Maendelo Agricultural Technology Fund.** 2009. Profit Making for Smallholder Farmers. *Proceedings from the 5th MATF Experience Sharing Workshop*. Food and Agriculture Research Management (FARM)-Africa.

**Robbins P., Bikande, F., Ferris, S., Kleih, U., Okoboi, G., and Wandschneider, T.** Manual 4: The Territorial Approach to Rural Agro-Enterprise Development. *In Collective Marketing for Smallholder Farmers*. FAO. Rome. Accessed on Sept. 2013.

INDICATOR NAME

# GUARANTEE OF PRODUCTION LEVELS (C 2.1.1)

DIMENSION ECONOMIC
THEME VULNERABILITY (C 2)
SUB-THEME STABILITY OF PRODUCTION (C 2.1)

## Description

Guarantee of production levels refers to the mechanisms that the enterprise has put in place to ensure that the quantity and quality of the production is sufficiently resilient to withstand environmental, social and economic shocks. They are mechanisms that could reduce the risks that might threaten the enterprise's production process and could prevent meeting business commitments and quality standards. As part of a risk management strategy, the enterprise needs to reduce as much as possible the negative impact of having production shortages due to economic, social and environmental shocks, and to ensure that volume and quality of the production are met. For instance, when applicable, the access to warehouses to store overproduction in relatively good conditions could benefit the enterprise in these emerging situations.

## Relevance to enterprise type and supply chain levels

This indicator applies to food and agriculture production and processing of any kind.

## Unit of measurement

This indicator measures whether the enterprise has access to, and implements mechanisms to, prevent any disruption of the volume of production and/or quality standards.

## How to measure

» Review the business records and the decisions taken by the governance body and/or the production department to check whether the enterprise has defined and implemented mechanisms to prevent any disruption of the volume of production and quality standards in the event of facing potential shocks.

» List the mechanisms implemented addressed at: preventing any disruption of the volume of production; preventing any disruption of quality standards.

Volumes may be considered in either absolute or relative terms, for example when the enterprise can switch between products (e.g. fishers targeting different species according to the season). A time reference (e.g. year or season) should also be used consistently in the measurement of this indicator.

## Rating

**Dark Green score:**

» The enterprise has a plan to guarantee the required volume of production and the compliance with quality standards in the event of facing social, environmental and economic shock; AND

» The enterprise has implemented all mechanisms included in the plan in order to achieve its objectives.

**Red score:**

» The enterprise has not developed any plans, nor has identified any mechanism to guarantee the required volume of production and the compliance with quality standards in the event of facing social, environmental and economic shocks; OR

» The enterprise has not advanced in implementing any mechanism to guarantee production and quality levels.

## Limitations

This indicator does not measure the quality, effectiveness and pertinence of the mechanisms implemented in terms of their objectives. In the post-harvest chain, it is very difficult to be able to guarantee production levels. This indicator is not viable for many actors within the chain; if there is shortage of one product because of an external cause (e.g. climatic conditions), the whole chain may be affected. For fisheries and aquaculture, the time period, as well as the product, would need to be considered here in order to account for the seasonality of production. For example, closed seasons in fisheries, when no catch is allowed, will certainly "disrupt the volume of production" if an entire year is considered. Yet, there is little fishers can do to maintain the catch of the species for which the fishery is closed. They can however target other species in the meantime. Under these circumstances, it is likely that the fishing enterprise would receive a 'red' score, which would not be fair.

## Sources of information

**OECD**. 2009. Managing Risk in Agriculture: a Holistic Approach.

**Wreford, A., Moran, D. and Adger, N.** 2010. *Climate Change and Agriculture: Impacts, Adaptation, Mitigation and Options.*

INDICATOR NAME **PRODUCT DIVERSIFICATION (C 2.1.2)**
DIMENSION **ECONOMIC**
THEME **VULNERABILITY (C 2)**
SUB-THEME **STABILITY OF PRODUCTION (C 2.1)**

## Description

Product diversification refers to the process through which the enterprise diversifies or expands beyond its product range by modifying existing products, or adding new products. For smallholder farmers, it enables a better use of land through crop rotation and the production of several crops and species simultaneously. It could have a direct impact minimizing soil erosion and increasing its fertility, as well as providing other environmental services, such as natural pest and weed control. Furthermore, it gives the enterprise the possibility to generate income all year round, reducing the dependency to seasonal crops and minimizing the risk of mono-cultivation. For larger enterprises, product diversification offers also additional revenue sources and spreads the risks across multiple products and markets. For all cases, it might require new skills and technology for developing and producing the new product, as well as additional resources for market research and market development. In the post-harvest chain, diversification minimizes the risk of climate disaster, usually widens calendar supply and tend to be a tool for stabilizing market prices that are so vulnerable in a fresh market. Diversification may be within the same range of products, which would facilitate the whole operation (e.g. transportation, customers, markets, use of infrastructure, branding, company image). It is a business strategy that could provide sales opportunities and growth to the enterprise through additional market potential. It aims to increase sales volume from new products and new markets. It also includes brand extension, or the creation of new brands for existing products. Product diversification also serves to manage the risks (i.e. weather, market, price) the enterprise faces by spreading it across multiple products and markets.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures whether the enterprise produces more than one product, or variety of plant or animal for income generation, or offers more than one service.

## How to measure

- Review the business records from the production department and check for the number and type of products, species or variety of plant or animal that the enterprise currently produces for income generation.
- Review the business records from the strategy and management, production, or research and development department and check if the enterprise is working towards producing new products, species or variety of plant or animal for income generation.

## Rating

**Dark Green score:**

» The enterprise currently produces a wide variety of products, species or varieties of plant or animal for income generation, OR the enterprise offers a wide variety of services to the industry; AND

» The enterprise has conducted a risk analysis to determine its level of vulnerability versus the type and number of products, species, and varieties of plant or animal it currently produces for income generation, OR the enterprise has conducted a risk analysis to determine the level of vulnerability versus the type and number of services it offers; AND

» The result of the risk analysis does not recommend, as a priority, a greater product diversification.

**Red score:**

» The enterprise currently produces only one product, specie or variety of plant or animal for income generation; OR

» There are records that reveal that the enterprise has an unfavorable level of vulnerability due to its mono-production; OR

» The enterprise has not progressed in implementing any step towards product diversification.

## Limitations

Product diversification does not necessarily guarantee the stability of production. In addition, product diversification can be associated with more risk and requires a careful research, analysis and the appropriate business decision. There can also be large costs associated with it, for instance: the cost of conducting the market research to identify the opportunity and potential for the enterprise, the cost of entry in the market with the new product, or the cost associated to ensure the competitive advantage of the product.

## Sources of information

**Abellan, E. and Basurci, B.** 1999. Marine finfish species diversification: current situation and prospects in Mediterranean aquaculture. *Options Méditerranéennes : Série B. Etudes et Recherches,* n. 24: 1-139. Zaragoza. CIHEAM.

**Ansoff, H.I.** 1957. Strategies for diversification. *In Harvard Business Review*.

**FAO.** 2010. Enhancing crop-livestock systems in conservation agriculture for sustainable product intensification: a farmer discovery process going to scale in Burkina Faso. *Integrated Crop Management*. Vol.7. Rome.

**Henichart, L.M., Lesueur, M., Fontenelle, G., Boude, J.P. and Ropars, C.** 2010. Diversification of fisheries activities and construction of sustainability. *IIFET 2010 Montpellier Proceedings*. Agro Campus Ouest. Pole Halieutique.

INDICATOR NAME **PROCUREMENT CHANNELS (C 2.2.1)**
DIMENSION **ECONOMIC**
THEME **VULNERABILITY (C 2)**
SUB-THEME **STABILITY OF SUPPLY (C 2.2)**

## Description

Procurement channels refers to the ways the enterprise obtains its input supplies (i.e. seed, fertilizers, semi-elaborated products, food ingredients, equipment, materials, packaging, paper, goods and services) required to produce the product (s) to be sold in the market, or to offer the default enterprise's service(s) to clients. Ensuring that inputs, goods and services, are delivered on time, reduces the enterprise's vulnerability and risk exposure to suppliers that might affect reaching the expected production levels, or delivering the type and quality of service offered. There are several strategies that the enterprise can implement in order to reduce this potential risk and to guarantee the production process, as well as meeting existing commitments with buyers and clients. For instance: diversification of suppliers, building stable and mutually beneficial business relationships with them, based on trust and competitive conditions (i.e. price and benefits), and the identification of alternative procurement channels that can be easily accessible in case of need.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. In the case of global suppliers who buy products to small and medium sizes enterprises, direct procurement is sometimes not viable. Groups of growers/enterprises are more probably able to build a long-run relationship reducing the risk in both ends. The indicator also applies to large wholesale/retailers who have implemented long-run relationships with product suppliers with mutual benefits.

## Unit of measurement

This indicator measures the extent to which the enterprise has implemented actions and mechanisms to ensure stable supply a nd reduce the risk to have input supply shortages. This includes maintaining on-going business relationships with suppliers.

## How to measure

- Review the business records and the decisions taken by the procurement department (or by management of the enterprise) to check for actions and mechanisms that have been put in place to ensure input supply.
- Prioritize the actions and mechanisms that have been implemented based on the results that have been achieved so far in terms of ensuring input supply.

## Rating

**Dark Green score:**

» The actions and mechanisms implemented have targeted maintaining business relationships with a number of suppliers that could guarantee the required input supply; AND

» The actions and mechanisms implemented enable the access to alternative procurement channels, in case current suppliers fail to provide the required inputs; AND

» Since the implementation of such actions and mechanisms, there are no records of input supply shortages, or periods during which the enterprise has failed to meet the expected volume of production on time, or to deliver the service offered.

**Red score:**

» No actions and mechanisms have been implemented to guarantee the required input supply; OR

» There are records of input supply shortages that have undermined the production process and the delivery of products and services to the market.

## Limitations

This indicator does not specify what is the appropriate number of suppliers the enterprise might need to have to guarantee its input supply, as it is subject to each particular case. Similarly, the strategies that the enterprise can implement to have a diversified supply structure, as well as the access to alternative supply channels, do not completely guarantee the stability of supply. Additionally, many times there is no availability of alternative qualified suppliers.

## Sources of information

**Jaffee, S., Siegel, P. and Andrews, C.** 2010. Rapid Agricultural Supply Chain Risk Assessment: A Conceptual Framework. *Agriculture and Discussing Paper*, No 47. World Bank.

**Levy, D.L.** 1995. International Sourcing and Supply Chain Stability. *In Journal of International Business Studies*. Second quarter. University of Massachusetts. Boston.

**Ostrovsky, M.** 2008. Stability in Supply Chain Networks. *In American Economic Review* 98:3, 897–923.

INDICATOR NAME

# STABILITY OF SUPPLIER RELATIONSHIPS (C 2.2.2)

DIMENSION ECONOMIC
THEME VULNERABILITY (C 2)
SUB-THEME STABILITY OF SUPPLY (C 2.2)

## Description

Stability of supplier relationships refers to the absence of excessive fluctuations in the linkages that the enterprise maintains with its suppliers. It could improve the performance of both stakeholders and contribute to minimize the enterprise's vulnerability to procure the required input supplies at the appropriate time. Suppliers that maintain a mutually beneficial business relationship with the enterprise for long periods of time contribute to the overall stability. There are factors that could influence building stable relationships with suppliers. For instance: make effective the payments on time; offer a fair and competitive price to them that benefit profit generation; provide adequate lead times and support as appropriate the resolution of suppliers' needs; personalize the relationship and contribute to improve their products, advance them finance, and keep suppliers informed of the enterprise progress and developments.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. Primary producers are asked about their relations to their input suppliers (e.g. feed, fertilizer, seeds, agrochemicals) and other producers, as producers may become "suppliers" for other actors within the post-harvest value chain.

## Unit of measurement

This indicator measures the share of supplier contracts/business relationship that has remained on-going over the last 5 years, or since the enterprise is in business for a period of less than five years.

## How to measure

» Review the business records from the procurement department (or of management or others responsible) for the last five years, or for the maximum number of years the enterprise is in business, if less than five years.
» Identify all the suppliers with whom the enterprise has had contracts or business relationships during this period.
» Calculate the share of suppliers with whom the enterprise has maintained a contract or business relationship over this period.

## Rating

**Dark Green score:**

» The share of contracts/business relationship with suppliers that enhance business development based on fair and beneficial terms and conditions and which has remained on-going over the last 5 years is 100%; AND

» The contracts/ business relationships maintained with the suppliers benefit the enterprise (i.e. delivery of inputs, quality and reasonable price);

**Red score:**

» The share of contracts/business relationship with suppliers that enhance business development based on fair and beneficial terms and conditions and which has remained on-going over the last 5 years is 0%; OR

» In each year of the period, the enterprise has modified its supplier structure; OR

» There are records of unfavorable practices the enterprise has had with any of its suppliers during the last five years.

### Limitations

This indicator assumes that maintaining a business relationship with suppliers is favorable for the enterprise. However, there may be cases where it could be more favorable for the enterprise to discontinue such relationship. This must be seen within a mutually beneficial business relationship.

### Sources of information

**Farm Management Canada**. 2012. Developing Sustainable Agricultural Supply Chains. Peter Erik Ywema, the Sustainable Agricultural Initiative Platform (SAI). Video.

**Network for Business Sustainability.** Managing Sustainable Global Supply Chains, Framework and Best Practices. Accessed on Sept. 2013.

**OXFAM.** Think Big, Go Small, Adapting Business Models to Incorporate Smallholder Farmers into Supply Chains. Oxfam International. Accessed on Sept. 2013.

**Pedersen, E.R. and Andersen, M.** 2006. Safeguarding corporate social responsibility (CSR) in global supply chains: how codes of conduct are managed in buyer-supplier relationships. *In Journal of Public Affairs*. Aug./Nov.

INDICATOR NAME

# DEPENDENCE ON THE LEADING SUPPLIER (C 2.2.3)

DIMENSION ECONOMIC
THEME VULNERABILITY (C 2)
SUB-THEME STABILITY OF SUPPLY (C 2.2)

## Description

Dependence on the leading supplier refers to the conditioning or subordinated status that the enterprise has versus a supplier, which is determined by the relative weight or importance this supplier has in procuring the amount of required inputs supplies (i.e. seed, feed, fertilizers, ingredients, products) to the enterprise. Diversifying the enterprise supply structure helps to have the capacity and flexibility to face and to resolve any kind of problem the enterprise could face in the market. It also reduces supply risk default. Having a large number of suppliers does not mean necessarily that the supply chain is diversified. It is equally important to assist and train the suppliers on what the enterprise expects from them, and what the enterprise will do with the inputs provided. The enterprise can also benefit from the competitive advantage of having a diversified range of suppliers, as each of them could offer distinctive attributes and product differentiation (i.e. price, innovation, quality). By having a diversified supply chain structure, the enterprise also contributes to build strong corporate-community ties and to enhance business growth of its suppliers.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures the share of the input supplies that come from the leading supplier.

## How to measure

» Review business records from the procurement department (or of management, or those responsible) and check for the total volume of input supplies that was purchased during the last year, by type of input.
» Identify all the suppliers that have sold inputs to the enterprise during the last year and check the total amount of inputs procured by each supplier, by type of input.
» Calculate the share of each supplier of the total volume of inputs procured, by type of input.

Consideration should be given to only those inputs (e.g. seeds, feed, fertilizers, packaging materials and products, transportation companies and other related services) that are more relevant to the enterprise and to which the enterprise' business is more sensitive.

## Rating

**Dark Green score:**

» The enterprise has conducted a risk analysis of its supply chain to identify its level of vulnerability to certain input supplies and suppliers; AND

» The enterprise has developed and implemented a strategy to minimize the supply risk and to establish a diversified supply structure when it is more appropriate; AND
» For the cases in which supply diversification is recommended, the share of the input supplies that come from the leading supplier does not exceed the 50%.

**Red score:**

» There are records that reveal that the enterprise has an unfavorable level of vulnerability to certain input supplies and suppliers; OR
» The enterprise has not implemented any steps towards reducing its supply risk.

### Limitations

There are also limitations of having a diversified supply chain, as in some cases, the enterprise could miss the benefits of the economy of scale, when a supplier sells a larger amount of input at a more competitive price. The enterprise should also do a cost-benefit analysis alongside the supply chain risk analysis in order to determine what level of diversification is the most effective and recommended for its situation.

### Sources of information

**Jaffee, S., Siegel, P. and Andrews,** C. 2008. *Rapid Agricultural Supply Chain Risk Assessment, Conceptual Framework and Guidelines for Application.* Agriculture and Rural Development. The World Bank. Accessed on Sept. 2013.

**World Bank.** *Supply Chain Risk Assessment: Cocoa in Ghana.* Agricultural Risk Management Team of the Agricultural and Rural Development department. The World Bank. Accessed on Sept. 2013.

INDICATOR NAME **STABILITY OF MARKET (C 2.3.1)**
DIMENSION **ECONOMIC**
THEME **VULNERABILITY (C2)**
SUB-THEME **STABILITY OF MARKET (C 2.3)**

## Description

Marketing channels refer to the ways the enterprise ensures the transfer and sale of the products and goods to the next stage of the food chain and to the final consumer. Key tasks include: making contact with potential buyers, negotiating price and conditions, contracting and transferring the products and goods. The ultimate goal of the marketing channels is to guarantee that the products or goods are sold at an appropriate time, and the enterprise earns revenue. Ensuring that the products and goods are sold at the appropriate time is a major business target. In order to guarantee success, the enterprise requires designing and implementing a marketing strategy to identify potential buyers that could meet the enterprise expectations and could eventually purchase its products and goods. Market risk could be significantly reduced through the establishment of stable business relationships with a diversified number of buyers. Furthermore, it could be minimized through the identification of alternative marketing channels that could be accessible when contracts, agreements or relationships are discontinued. In post-harvest chains of perishable products, additional uncertainties have to be considered because of vulnerabilities in market supply and prices influenced by a number of factors, such as climate-related diseases or other natural disasters and costumer's behaviour.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types of enterprises at all levels of the supply chain.

## Unit of measurement

This indicator measures the extent to which the enterprise has guaranteed its stability in the market through the implementation of actions and mechanisms to ensure a diversified and consolidated income structure from the product' sales.

## How to measure

- Review the business records and the decisions taken by the commercial department (or management, or those responsible for this component) to check for actions and mechanisms that have been put in place to ensure a diversified and consolidated income structure.
- Prioritize the actions and mechanisms that have been implemented, based on the results that have been achieved so far in this regards.
- Calculate the income structure and determine the number of years the enterprise has an on-going business relationship with each buyer.

  Measuring a diversified income structure requires two data points: number of buyers and income share per buyer. Measuring a consolidated income structure requires reference data points, such as the number of years of business relationship with each buyer, or the type of business relationship established (i.e. with formal written agreements, regular communication).

## Rating

**Dark Green score:**

- The actions and mechanisms implemented have targeted a diversified income structure with at least three or more buyers, where no buyer is responsible for more than 50% of the annual income obtained from the products sold; AND
- The actions and mechanisms implemented have targeted a consolidated income structure where buyers have maintained a business relationship for at least more than a year with written contracts or agreements; AND
- The actions and mechanisms implemented allow the enterprise accessing alternative marketing channels in case contracts, agreements or business relationships are discontinued; AND
- Since the implementation of such actions and mechanisms, there has been no records of related financial loses as all products or goods have been sold.

**Red score:**

- One buyer is responsible for 100% of the annual income obtained from the products sold; OR
- The income structure of the enterprise is made of one or two buyers only; OR
- No actions and mechanisms have been implemented to enhance a diversified and consolidated income structure; OR
- There are no written records regarding the sales agreement or the purchase order from the buyer; OR
- There are records of financial loses as the enterprise has not been able to sell the products or goods at the appropriate time, and it has kept a large and unnecessary level of inventory, when applicable.

## Limitations

- This indicator does not specify what is considered as the most appropriate diversified and consolidated income structure, as it is context specific. This indicator also assumes that maintaining a business relationship with a buyer is positive; however there are cases where it could be more beneficial to the enterprise to discontinue such relationship. The level of diversification and related risk depends on income structures variables of both supplier and buyer. Suppliers variables include price, quality and timing of the product being sold, payment structure, special requirements in procurement calendars, etc.

## Sources of information

**Cervantes-Godoy, D., Kimura, S. and Anton, J.** 2013. *Smallholder Risk Management in Developing Countries*. OECD.

**FARM (Forum on Agriculture Risk Management in Development).** Risk management tools in the agriculture sector in developing countries. Accessed on Sept. 2013.

**Purdue Extention**. *A guide to marketing for small-scale aquaculture producers*. University of Illinois. Accessed on Sept. 2013.

**The World Bank**. Agriculture Risk Management. Accessed on Sept. 2013.

**United States Department of Agriculture**. USDA Economic Research Service. Accessed on Sept. 2013.

INDICATOR NAME **NET CASH FLOW (C 2.4.1)**
DIMENSION **ECONOMIC**
THEME **VULNERABILITY (C 2)**
SUB-THEME **LIQUIDITY (C 2.4)**

## Description

Net cash flow is one of the most critical financial measures, as it indicates the enterprise's financial strength. It is a key indicator that measures the liquidity level required to meet the financial commitments of the enterprise. When the balance of cash is positive (cash inflows exceed cash outflows), the enterprise can ensure its functioning and is economically viable over time. Positive net cash flow is pivotal for an organization's capacity to grow by investing in future projects. On the other hand, a negative cash flow puts the enterprise in the undesirable situation of not being able to meet its obligations (a cash flow crunch), which can lead to insolvency. However, short-term negative cash flow is not always a sign of poor financial health. It can indicate the expansion of the enterprise and can be offset by borrowing. It summarizes the movement of cash into and out of the enterprise. This indicator can be derived from the cash flow statement. It represents the sum of cash flow from operations, cash flow from investing and cash flow from financing. Additionally, it can be assessed by calculating the period-over-period change in cash on the balance sheet.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures the net cash flow generated by the enterprise in the last five years.

## How to measure

- Review the cash flow statement for each year of the period and check for the total cash inflows and cash equivalents registered for operating, financial and investing activities.
- Review the cash flow statement for each year of the period and check for the total cash and cash equivalents outflows registered for operating, financial and investing activities.
- Calculate the net cash flow as the difference between the total inflows and the total outflows. Net cash flow equals inflows less outflows of cash and cash equivalents related to:
  - operating activities: they are the principal revenue-producing activities of the enterprise and other activities that are not investing or financing;
  - investing activities: they refer to the acquisition and disposal of long-term assets and other investments that are not considered to be cash equivalents;
  - financing activities: they are activities that result in changes in the size and composition of the contributed equity and borrowings of the enterprise.

## Rating

**Dark Green score:**

» Net cash flow is above 0 (positive); although there is no performance-tier system based on an exact percentage, the higher the ratio the better. The enterprise records positive year-over-year, or season-over-season, net cash flow. Short-term negative cash flow is acceptable only if the enterprise has set-up precautionary measures, like a bridge loan, which will help it survive unexpected cash shortfall situations.

**Red score:**

» Net cash flow is below 0 (negative) for each year, or season, of the period. Negative cash flow balances put an enterprise at risk of becoming insolvent and ceasing to exist. While planning to invest in new crops and equipment, the enterprise needs to ensure that the investment will pay off and generate a positive net value.

## Limitations

This indicator measures the liquidity level of the enterprise by calculating the net cash flow that result from different activities that the enterprise implements, including for instance, the disposal of a credit line, but it does not necessarily measure directly the ability of the enterprise to access credit or insurance. Given the seasonality and variability of fishing and aquaculture operations, especially if small-scale, small-scale producers may struggle to provide yearly figures, and may often appear 'in the red'.

## Sources of information

**Aquaculture and Fisheries Center**. 2012 . Evaluation of cash flow/liquidity in an aquaculture business. University of Arkansas at Pine Bluff. *SRAC Publication* No. 4403.

**Aquaculture and Fisheries Center.** Catfish growth - cash flow models. Financial management of aquaculture farms (example of catfish). University of Arkansas at Pine Bluff. Accessed on Sept. 2013.

**GIIN.** Impact Reporting and Investment Standards. IRIS Metrics. Global Impact Investment Network. Accessed on Sept. 2013.

INDICATOR NAME **SAFETY NETS (C 2.4.2)**
DIMENSION **ECONOMIC**
THEME **VULNERABILITY (C 2)**
SUB-THEME **LIQUIDITY (C 2.4)**

## Description

Safety nets refer to the programmes, institutions, networks, social relationships, instruments and mechanisms that could support the enterprise to withstand any individual of systemic shock. The need to access safety nets is critical, especially in periods of crises, when for instance the enterprise faces a lack of cash-flow and is not able to meet its short-term financial obligations (e.g. payment of loans, payment of salaries, purchase of inputs, seeds). Safety nets can be classified as formal and informal. Formal safety nets are those which legally guarantee the enterprise access to financial, economic or social support (i.e. banks, micro-credit institutions, public social programmes, government transfers of food or cash). Informal safety nets provide likelihood of support to the enterprise to cope with the risk and vulnerable situation is facing, but with no legal guarantee (i.e. family, friends, community groups and non-governmental institutions). The enterprise could have access to a number of options to guarantee its financial security and stability; they all constitute its financial safety net. The lack of access to formal markets and services in developing countries has influenced the growth of informal safety nets, especially in poor rural areas. Agricultural activities are more vulnerable to shocks, and formal institutions for risk management are less developed. There could be direct benefits for the enterprise from accessing safety nets: reduction of uncertainty, increase of incentives to invest in more risky and more profitable initiatives, reduction of income volatility and protection against financial liquidity crises.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. While large enterprises can tap into numerous financing sources due to their access to capital markets, small-scale producers may supplement their financing with more informal mechanisms because they have limited access to formal financial sources.

## Unit of measurement

This indicator measures whether the enterprise has access to formal and informal financial sources to withstand liquidity crises.

## How to measure

» Review the business records and check whether the enterprise has access to financial resources through safety nets. Some examples could be: trade credit; bank credit provisions (bridge loans or lines of credit); credit insurance, factoring (third party company purchase of receivables); explicit government supported guarantees for financial obligations; individual and group-based sources of capital; micro-credit institutions; insurance groups.

» Review the business records and recent cash-flow statements and check whether the enterprise has had any liquidity crises in the past and verify how it was resolved.
» Review any risk analysis the enterprise has conducted and check for the major risks that were identified that could have more negative impact in the enterprise' performance.

The strength of the safety net of the enterprise depends on the variety and number of financing options available. The lack of these provisions can make the difference between a business' survival and failure.

## Rating

**Dark Green score:**
» The enterprise's safety net includes a sufficient number of financing sources that maintain its capital flow; AND
» When applicable, the enterprise has resolved with success any liquidity crises faced; AND
» The risk analysis conducted to the enterprise does not recognize financial liquidity as a major risk.

**Red score:**
» The financing is maintained from one source with no alternative back-up financing solutions; OR
» The enterprise has not implemented any step to improve its financial security and stability; OR
» Financial liquidity is a major risk faced by the enterprise.

## Limitations

The access to safety nets does not guarantee the financial security and stability of the enterprise. The efficacy of the financial safety net depends on the reliability of its components (i.e. institutions, programmes, mechanisms, community groups).

## Sources of information

**FAO.** Social safety nets and food security crisis. Accessed on Sept. 2013.

**Rubio, G.M. and Soloaga I.** 2003. *The rural sector and informal safety nets.* Agricultural and Development Economics Division. FAO.

**Sayemi, H. and Rosenberg, R.** 2006. *Graduating the poorest into micro-finance: linking safety nets and financial services.* Rural Finance Learning Center.

INDICATOR NAME **RISK MANAGEMENT (C 2.5.1)**
DIMENSION **ECONOMIC**
THEME **VULNERABILITY (C 2)**
SUB-THEME **RISK MANAGEMENT (C 2.5)**

## Description

A risk adaptation and mitigation plan is a structured set of actions and mechanisms to implement to prevent, manage and reduce the extent to which the enterprise is exposed to internal and external risks(s), its(their) likelihood of occurrence, and to minimize its(their) possible negative impact. Some risks the enterprise could be exposed to include: price, production, market and credit risk, unstable employment relations, unavailability of workforce, conflicts with the community and other stakeholders, natural disasters, diseases and climate change. Internal risks are those that the enterprise can have more control on within the scope of the business (e.g. accidents at the workplace). External risks are those risks that the enterprise does not have any control on (e.g. heavy rains). The development and implementation of a risk adaptation and mitigation plan is required to strength the enterprise capacity to for instance, reduce the likelihood of occurrence of internal risks to minimum levels (i.e. the establishment of attractive conditions for the employees to prevent their mobility), or to reduce the negative impact of external risks (i.e. the installation of fire roads across the cultivated land to prevent the expansion of an uncontrolled fire).

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain. Every enterprise along the food chain is exposed to different types of risks that might threaten the business and could have a negative impact in the enterprise performance, growth, its stakeholders and beneficiaries.

## Unit of measurement

This indicator measures whether the enterprise has put in place a plan to reduce and adapt itself against risks that could potentially threaten the business.

## How to measure

- Develop a risk matrix to identify the major internal and external risks that could potentially threaten the business. Provide a score to each risk for the following variables: likelihood of occurrence (i.e. certain, likely, possible, unlikely, rare); the enterprise' level of exposure to them (i.e. extreme, high, moderate, low); and the degree of possible negative impact to the enterprise in case of occurrence (i.e. tragic, critical, marginal, negligible).
- Review the enterprise business records and the decisions taken by the different departments (i.e. production, commercial, financial, human resources, governance body) to check for actions and mechanisms that have been implemented against the internal and external risks that could potentially threaten the business.
- List and prioritize the actions and mechanisms that the enterprise has implemented, based on the likelihood of occurrence of the risks they are referred to, the level of exposure of the enterprise to them, and the degree of possible negative impact to the enterprise.

## Rating

**Dark Green score:**

» A set of actions and mechanisms has been implemented to adapt to and/or to reduce the possible negative impact of all internal and external risks that could potentially threaten the enterprise' business; AND

» Since the implementation of these actions and mechanisms, there are records that present how the enterprise has reduced the likelihood of occurrence of certain risks, the level of exposure to them, and their potential negative impact.

**Red score:**

» The enterprise has not evaluated which internal and external risks could potentially threaten its business; OR

» The enterprise has not implemented any action and mechanism to adapt to and/or to reduce the possible negative impact of any internal or external risk that could potentially threaten the enterprise' business.

## Limitations

Even when risk management is a good tool, quality and effectiveness of actions and mechanisms implemented should be monitored and may be costly for many small and medium size enterprises.

## Sources of information

**FAO**. 2008. Understanding And Applying Risk Analysis In Aquaculture. *FAO Fisheries and Aquaculture Technical Paper*. No. 519. Rome.

**Nunez, M. and Aspitia, M**. 2013. Risk Management Guide for Agriculture. *Manual para desarrollar capacidades institucionales en la gestión del riesgo agroempresarial.* The Inter-American Institute for Cooperation on Agriculture. Costa Rica.

**Sumner, J. and Ross, T.** 2004. Risk Assessment In The Fish Industry. *FAO fisheries technical paper* 442.

INDICATOR NAME **CONTROL MEASURES (C 3.1.1)**
DIMENSION **ECONOMIC**
THEME **PRODUCT QUALITY AND INFORMATION (C 3)**
SUB-THEME **FOOD SAFETY (C 3.1)**

## Description

Control Measures refers to the actions that the enterprise can take to reduce the potential of exposure to food hazards, or to reduce the likelihood of the risk of exposure to the hazards being realized. This might include the following tasks: conduct a risk analysis to identify all possible hazards; identify any steps in the production process that are critical to the safety of food; implement effective procedures to ensure as appropriate food safety by eliminating or isolating hazards; conduct a monitoring and evaluation of these procedures to ensure their effectiveness to avoid any food contamination. Food contamination should be avoided; implementing control measures enables the enterprise to prevent and combat any situation that might lead to food contamination. Food safety has a direct impact on consumers' health, as well as on the employees that are in direct contact with the food ingredients. An integrated approach to ensure food safety requires a strong cooperation by the food industry and chain stakeholders in order to build consumers trust and confidence. The enterprise requires investing in education programmes, preventive measures and adoption of adequate practices. A food safety hazard is a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect. Some examples include improper use of agricultural chemicals (i.e. insecticides, fungicides, herbicides, fertilizers), metal and rock fragments, the appearance of virus, bacteria and parasites and the use of genetically-modified organisms that have been proven to be harmful.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures whether the enterprise has food hazards and safety control measures in place that comply with correspondent regulations.

## How to measure

- Implement sound good agricultural and manufacturing practices.
- Review the policies and practices that have been implemented in terms of food quality and safety control in the production and processing department.
- Check whether there are mechanisms in effective operation to prevent and control food hazards and food contamination.
- When applicable, check whether the measures in place are updated and comply with correspondent regulations referred to food safety.

## Rating

**Dark Green score:**

» There are mechanisms in effective operation that fully comply with correspondent regulations to prevent and control food hazards and food contamination; AND

» There are no records of food contamination incidents since the mechanisms are in place.

**Red score:**

» There are no mechanisms in place to prevent and control neither food hazards nor food contamination; OR

» There are records of food contamination incidents in the last five years.

## Limitations

This indicator does not measure directly the effectiveness of the mechanisms implemented. It does not determine what are the correspondent food safety regulations that the actions and mechanisms need to comply with, as it is context specific.

## Sources of information

**Canadian Food Inspection Agency**. Guide to Food Safety. Accessed on Sept. 2013.

**Codex Alimentarius International Food Standards.** Accessed on Sept. 2013.

**Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ).** 2013. Strategies for Improved Food Safety in Southeast Asia. Sector Project Agricultural Trade and Private Sector Cooperation in Rural Areas.

**FAO**. Hazard Analysis Critical Control Point (HACCP). Aquaculture and Fisheries Department. Rome. Accessed on Sept. 2013.

**FAO**. Recommended International Code of Practice. General Principles of Food Hygiene and HACCP. Rome. Accessed on Sept. 2013.

**GFSI**. Global Food Safety Initiative. Accessed on Sept. 2013.

**GlobalG.A.P.** 2013. Integrated farm assurance. All Farms, Crop base and Fruits and Vegetables. Control points and compliance criteria. *IFA Version 4.0-2*. P. 3-96.

**UC Small Farm Center**. Food Safety at Farmers Markets and Agritourism Venues. University of California Davis. Accessed on Sept. 2013.

**World Health Organization**. Accessed on Sept. 2013.

INDICATOR NAME **HAZARDOUS PESTICIDES (C 3.1.2)**
DIMENSION **ECONOMIC**
THEME **PRODUCT QUALITY AND INFORMATION (C 3)**
SUB-THEME **FOOD SAFETY (C 3.1)**

## Description

A pesticide is a chemical substance or biological agent used to prevent, destroy, attract, repel, mitigate or control any pest, such as insects, plants pathogens, weeds, fungi or other microorganisms as bacteria and viruses. They are commonly used during the production, storage, transport, distribution and processing of food, plants, crops, agriculture commodities, or animal feeds that might be administered for the control of ectoparasites. They can be classified by target organism, for instance: herbicides, bactericides, fungicides, insecticides or virucides. Synthetic pesticides are classified in two categories: moderate and hazardous pesticides (Class I) and highly hazardous (Class II) pesticides, in relation to the chronic and acute problems they present on living beings. The category of Highly Hazardous Pesticides includes: endocrine disruptors pesticides, immune toxic pesticides, pesticides using hazardous nanomaterials, genotoxic pesticides and environmental toxic pesticides (bee toxicity). A considerable proportion of the pesticides currently used can be considered as highly hazardous, because they are highly toxic, or there are records of chronic toxic effects in human beings, even at low exposure levels, and they persist in the environment or in organisms, causing negative effects on the ecosystem. The World Health Organization publishes the most up-to-date list of pesticides currently considered highly hazardous, as they can cause health problems and fatalities, as a result of occupational exposure, and accidental or intentional poisonings. Environmental contamination could also result in human exposure through the consumption of residues of pesticides in food or drinking water. Biodiversity can be highly damaged through the reduction of the number of species and the degradation of natural resources (i.e. soil, water, air, land). The enterprise is responsible of ensuring a healthy and safe environment for the employees, as well as preventing any health and environmental damage in the society. There are alternatives to the use of synthetic pesticides, including: the use of natural pesticides derived from plants; the use of pest predators (biological control); organic management that establishes a nutrient balance keeping pests at a minimum level through crop rotations, sanitation, cover crops, resistant varieties, appropriate planting dates and plant spacing; and technical and mechanical controls to suppress pest through temperature or light.

## Relevance to enterprise type and supply chain levels

This indicator applies to primary food production of all kinds, except capture fisheries and processing. In particular, highly hazardous pesticides should be avoided in all the stages of the production, storage, processing, transport and distribution of the enterprise' products and species of plants or animals.

### Unit of measurement

This indicator measures whether any of the enterprise' employees has handled, stored or used any highly hazardous and other pesticides during the last five years, as well the use of biological or mechanical pest management techniques.

### How to measure

- Review the business records from the production, processing, quality control and distribution department and check for the pesticides that have been used in the last five years.
- Compare the list of pesticides that the enterprise has used with the most-up-to date list highly hazardous pesticides published by the World Health Organization.
- Identify whether highly hazardous have been applied at any stage of the food chain during the last five years.
- Identify alternatives to synthetic pesticides that have effectively been used.

### Rating

**Dark Green score:**

- Sound good agricultural and manufacturing practices are in place; AND
- There are no records of use of highly hazardous pesticides by any employee during the last five years across all the stages of the food chain; AND
- The enterprise has a policy, extended to suppliers, that prohibits the use of synthetic pesticides in all the stages of the food chain; AND
- The enterprise requires the suppliers not to use any synthetic pesticides for the production, storage and distribution of the inputs, ingredients or products sold to the enterprise; AND
- The enterprise has incorporated and used organic and natural pest control, when is most appropriate; AND

**Red score:**

- There is no evidence of implementation of sound good agricultural and manufacturing practices; OR
- There are records that the enterprise has used highly hazardous pesticides during the last five years; OR
- There are records of contamination and toxic effects to human health and the environment during the last five year attributed to the enterprise; OR
- The enterprise is not aware or informed about the list of hazardous pesticides to be avoided; OR
- The enterprise has not implemented any step towards reducing or prohibiting the use of highly hazardous pesticides in all the stages of the food chain.

### Limitations

This indicator could present some difficulties to measure, as it covers many stages of primary production and processing levels: from inputs, land cultivation, to product processing and transformation, storage and transport. The control and monitoring of suppliers practices could also be limited. Access to information related highly hazardous pesticides in some context and countries might be also restrictive. Application of good agricultural and manufacturing practices is a good tool for rating.

## Sources of information

**EPA**. Globally Harmonized System (GHS) for Classification and Labeling of Chemicals. *In Pesticides: International Activities*. EPA. USA. Accessed on Sept. 2013.

**FAO**. Highly Hazardous Pesticides. Crop Protection Division. Rome. Accessed on Sept. 2013.

**Federation of Organic Agriculture Movements (IFOAM).** Pest, disease and weed management. *IFOAM Internet Training Platform*. Accessed on Sept. 2013.

**National Sustainable Agriculture Information Services**. Pest Management. *The National Sustainable Agriculture Information Service – ATTRA*. Accessed on Sept. 2013.

**Rodgers, C.J.** 2009. Risks associated with the use of veterinary drugs and chemicals in aquaculture: assessment and control. Zaragoza. CIHEAM. *Options Mediterraneennes: Series A. Seminaires Mediterraneens* n.86.

**World Health Organization.** Highly Hazardous Pesticides. Accessed on Sept. 2013.

**World Health Organization**. 2009. *The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification*. IPCS and IOMC.

INDICATOR NAME **FOOD CONTAMINATION (C 3.1.3)**
DIMENSION **ECONOMIC**
THEME **PRODUCT QUALITY AND INFORMATION (C 3)**
SUB-THEME **FOOD SAFETY (C 3.1)**

## Description

Food contamination incidents refer to cases in which adulteration of food has been reported due to negligence, accident, or involuntary misconduct of the enterprise. In these cases, food products that have been distributed and consumed are spoiled or infected because they either contain microorganisms, such as bacteria or parasites, or toxic substances that make them unsuitable for consumption. Different type of elements can cause food contamination, for instance: agrochemicals (i.e. pesticides, synthetic fertilizers), environmental contaminants (i.e. arsenic, mercury, copper, mycotoxins), processing contaminants (i.e. histamine, benzene), biological organisms (i.e. salmonella) and unapproved genetically-modified organisms (GMOs), among others. The careful management of food production, processing and the avoidance of these substances is essential to prevent contamination. The occurrence of food contamination could have severe negative impacts on consumers' health. Recurrent incidents of food contamination caused by the enterprise's products and goods could also affect buyers' and consumers' confidence and influence their buying decision. This behaviour could directly undermine the enterprise's image, market position and sales records. There are health and safety regulations that recommend and enforce to adopt adequate practices to prevent and control the occurrence of food contamination. The enterprise should be informed and apply them. To conduct a cost-effective monitoring and surveillance of food security, a coordinated multi-stakeholder approach is required along the food chain. Keeping food safe as it moves in the supply chain is a significant challenge, especially in the context of global networks. Information and traceability systems allow continuous collection and analyses of relevant information for tracking, monitoring and recalling the product; this improves food protection and consumers' safety. Similarly, strengthening the epidemiological and microbiological expertise across the food chain could facilitate the direct monitoring of the product and the problem solving.

## Relevance to enterprise type and supply chain levels

This indicator applies to all levels of the food chain, for all primary food production types and processing operations.

## Unit of measurement

This indicator measures whether there are any documented incidents at the enterprise where pesticides residues in ingredients or products have exceeded the maximum allowed limits during the last 5 years. It also measures whether there are any documented incidents of chemical and biological food contamination (i.e. due to the use of heavy metals, unapproved GMOs, mycotoxins) during the last five years.

### How to measure

- Check whether sound good agricultural and manufacturing practices are in place.
- Check whether there is a written procedure clearly describing actions in case of food safety event, responsibilities, communication and withdrawal procedures.
- Review the business records from the production, processing and quality control department of the last five years, including any reported incident resulting from pesticides residues levels in excess of established limits in ingredients or products, or from any chemical or biological food contamination.
- Review business records and check if there is any reported incident of food contamination from final consumers of the products sold during the last five years.
- Review business records and check if the enterprise has any food safety policy to prevent food contamination and has adopted correspondent practices.

### Rating

**Dark Green score:**

- There are no records of food contamination incidents resulting from the enterprise' products during the last five years across all stages of the food chain; AND
- The enterprise has adopted best practices to prevent and control food contamination, based on the correspondent health and safety regulations; AND
- The correspondent employees are informed and trained and have access to the equipment required to ensure food safety and to prevent any contamination incidents.

**Red score:**

- There is no evidence of implementation of sound good agricultural and manufacturing practices; OR
- There is lack of a written procedure clearly describing actions in case of food safety event, responsibilities, communication and withdrawal procedures; OR
- There are records of food contamination resulting from the enterprise's products in the last five years; OR
- An increasing trend of number of food contamination incidents is reported during the period; OR
- The enterprise has not implemented any step towards preventing food contamination incidents; OR
- The enterprise has not established the adequate health and safety conditions to ensure food safety.

### Limitations

Food contamination incidents are an important reference to assess food safety. However, there are other aspects that would need to be considered for a more comprehensive assessment to ensure food safety measures and controls, such as the design and construction of premises (i.e. buildings, facilities, food contact surfaces), control of operations (i.e. transportation, receiving, shipping, storage and handling, temperature control, equipment, personal health and hygiene, complaint handling) and other applicable preventive food safety and control systems.

## Sources of information

**British Retail Consortium.** 2011. World standard for food safety.

**Codex Alimentarius International Food Standards.** Accessed on Sept. 2013.

**FAO and World Organization for Animal Health**. 2009. *Guide to good farming practices for animal production for food safety*. Rome.

**FAO**. 2001. Recommended International Code of Practice. General Principles of Food Hygiene. Agriculture and Consumer Protection Department. Rome.

**FAO.** Hazard Analysis Critical Control Point. Fisheries and Aquaculture Department. Rome. Accessed on Sept. 2013.

**FAO**. Pest and Pesticide Management. Accessed on Sept. 2013.

**FAO/IAEA**. 2001. Manual on the Application of the HACCP System in Mycotoxin. Prevention and Control. *FAO Food and Nutrition paper* n. 73.

**Global Food Safety Initiative**. Accessed on Sept. 2013.

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**Jensen, G.L. and Greenlees, K.J.** 1997. Public health issues in aquaculture. *Rev. sci. techn. Off. Int. Epiz.* 16(2): 641-651. Organisation Internationale des Epizooties.

**Watterson, A., Little, D., Young, J.A., Murray, F., Doi, L., Boyd, K.A. and Azim, E**. 2012. Scoping a public health impact assessment of aquaculture with particular reference to Tilapiain in the UK. *In ISRN Public Health* Article ID 203796.

INDICATOR NAME **FOOD QUALITY (C 3.2.1)**
DIMENSION **ECONOMIC**
THEME **PRODUCT QUALITY AND INFORMATION (C3)**
SUB-THEME **FOOD QUALITY (C 3.2)**

## Description

Quality Standards refers to the set of rules defined to guarantee food quality and to meet the highest nutritional standards respective to the type of product. Quality standards are also important for forest products, including wood products and non-wood products. For storage and transportation, quality refers also to cleanliness and packing that guarantee quality assurance within the supply chain. Food standards are a body of rules or legislation defining certain criteria, such as composition, appearance, freshness, source, sanitation, purity, which food must fulfill to be suitable for distribution or sale. The enterprise implements quality control measures to ensure that the expected level of quality of the product and nutritional standards are met. Product quality is an important component to leverage the enterprise' market positioning and growth. Its competitive advantage lays predominately in two main factors: quality of the product and its price. Achieving high quality levels and the highest nutritional standards might benefit considerably the enterprise' business growth. Even though each product might require to meet specific nutritional standards, there are some that might be recommended across the food chain, for instance: level of calories based on the ranges defined by the Dietary Reference Intakes (DRIs), low content of saturated and trans fat, no added sugar, low content of additives, rich in fiber, minerals, vitamins and proteins. The national departments or ministries of health, education or agriculture tend to define and recommend specific nutritional standards for each product that the enterprise should know to ensure its compliance.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures the share of the total volume of production that meets quality standards, that is the set of parameters describing internal (e.g. taste, maturity, nutritional content) and external (e.g. cleanliness, color, freshness, shape, presentation, packing) characteristics, which are necessary to ensure safety, transparency in trade and good eating quality.

## How to measure

- Review the quality control report referred to the total volume of production for a given period.
- Check whether the quality control report observes the required standards, according to the norms that the product needs to meet.
- Calculate the share of the volume of production that has successfully passed the quality control.

## Rating

**Dark Green score:**

- 100% of the volume of production has successfully passed the quality control that measures the required and highest nutritional standards the product needs to meet; AND
- The enterprise has advanced in adopting the best practices to produce food products that meet the highest nutritional standards considered for its target population, such as for instance: the level of calories based on the ranges defined by the Dietary Reference Intakes (DRIs), there is a low content of saturated and transfats, no added sugar, low content of additives, the product is rich in fiber and certain minerals, vitamins and proteins; AND
- The respective staff is informed and trained in adopting the best practices to meet the expected food quality levels and the highest nutritional standards; AND
- Wood and non-wood products meet accepted quality standards.

**Red score:**

- Any amount of the production has not passed the quality control that measures the required nutritional standards the product needs to meet; OR
- The enterprise has not implemented any step towards adopting best practices to produce food products that meet the highest nutritional standards and food quality levels.

## Limitations

This indicator does not determine what are the highest nutritional standards applicable to the respective product, as it is subject to each case, target population, national and international regulations. However, it suggests some minimum guidelines. Application of this indicator to fish products from either small-scale or larger-scale operations and marketed fresh, directly on markets or via traders, is likely to be difficult, as no such quality controls are undertaken.

## Sources of information

**FAO**. Good Agricultural Practices. Accessed on Sept. 2013.

**FAO**. Food Safety and Quality. Accessed on Sept. 2013.

**World Food Programme.** Nutritional requirements (for adults). Accessed on Sept. 2013.

**Will, M. and Guenther, D. Deutsche.** 2007. *Food quality and safety standards. A practitioner's reference book.* Division 45: Agriculture, Fisheries and Food. Gesellschaft fur Internationale Zusammenarbeit (GIZ).

INDICATOR NAME **PRODUCT LABELING (C 3.3.1)**
DIMENSION **GOVERNANCE**
THEME **PRODUCT QUALITY AND INFORMATION (C 3 )**
SUB-THEME **PRODUCT INFORMATION (C 3.3)**

## Description

Product labeling is an essential part of transparent accountability to consumers. According to the Codex Alimentarius Commission (CODEX STAN 1-1985), "Labeling means any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal." Information usually provides details on the content and composition of products but also particular aspect of the product, such as its origin, or its production method, including whether it has been produced using a certified organic production or other method. Some foodstuffs, such as those containing genetically modified organisms or allergenic substances, especially foods intended for infants or even various beverages, are subject to specific regulations. Labeling may also identify value-based systems, such as whether goods have been produced using a certified fair trade system. Labeling of certain non-food products must also contain particular information such as toxicity, hazard and flammability, in order to guarantee their safe use and allow consumers to exercise real choice. In addition, the packaging of foodstuffs must adhere to production criteria in order to avoid contaminating food products with both food and non-food contaminants. Labeling must be genuine and in the best systems, this is independently verified, such as an organic certification or fair trade certificate. Therefore, labeling and claims vary from ethical and nutritional, through safety and production process characteristics and can include the mundane, such as origin through to whether the food is the result of genetic engineering. The standard is that labels must be clear, honest and verifiable.

## Relevance to enterprise type and supply chain levels

For all but the smallest and informal enterprises, this indicator will apply. Even in the informal economy, claims are made for food produced. For example at a roadside market in coastal Lae, Papua New Guinea, a village woman sells not only her own produce but cabbages grown in the mountainous Chimbu province with a handwritten sign on used cardboard identifying "Kundiawa cabbage".

## Unit of measurement

- For mandatory labeling as required in the country of sale, 100% of compliance is expected. However, where an enterprise markets to numerous jurisdictions, the highest standard required by any jurisdiction should be applied to all.
- Where an enterprise has adopted labeling and information beyond the minimum standard, this should be noted and again 100% compliance is expected, as anything less is worse than no labeling at all.

### How to measure

» All product labeling is audited against legally required code in the country in which it is sold.
» All voluntary claims (e.g. fair trade, organic) are checked against the independent certifier statement.
» Where content and nutritional claims are made, these are routinely independently audited.
» Labeling codes used are included in the enterprise quality management documentation and any variance from the code is documented and reported internally.

### Rating

**Dark Green score:**
The enterprise fully complies with all relevant legally required labeling codes for its products. It seeks to go beyond minimum standards in providing consumer information, is responsive to its stakeholders and has an accessible system, whereby consumers and other stakeholders can obtain further product and product quality and safety information.

**Red score:**
» The enterprise has not complied with labeling codes and has sought to avoid the impact of these codes; OR
» Products are knowingly or regularly incorrectly labeled.

### Limitations

The indicator relies on regulated labeling codes. In some jurisdictions, these may not exist. Moreover, some of the important information is not present in the breach, for instance, while some suppliers strive for fair trade status, no producer labels "not fair trade".

### Sources of information

**Europa**. Product labelling and packaging. EU legislation. European Union webpage. Accessed on Sept. 2013.

INDICATOR NAME **TRACEABILITY SYSTEM (C 3.3.2)**
DIMENSION **GOVERNANCE**
THEME **PRODUCT QUALITY AND INFORMATION (C 3 )**
SUB-THEME **PRODUCT INFORMATION (C 3.3)**

## Description

A traceability system is a series of mechanisms and procedures that ensure traceability over all stages of the food chain, so that products can be easily and correctly identified and recalled. The Codex Alimentarius Commission (CODEX STAN 1-1985) defines traceability as "the ability to follow the movement of a food through specified stage(s) of production, processing and distribution". The "ability to follow the movement" refers to tracing both directions: trace forward in the food chain and trace backward in the food chain. Furthermore, "movement" can relate to the origin of the materials, processing history or distribution. Traceability systems could be composed of rules and documented procedures, organizational structures, processes and management resources (i.e. personnel, financial resources, equipment, information technologies), regulations and training. A traceability system can also use information system technologies for electronic data entry and database management systems. Traceability systems improve management of risks related to food safety, guarantees products authenticity and give reliable information to customers. New legal requirements in many developed and developing countries increase pressure on exporting countries to comply with traceability requirements and especially, with those included in the World Trade Organization agreements, to justify sanitary or phyto-sanitary objectives. Additionally, traceability is a requirement in all B2B voluntary certifiable standards in good agricultural and manufacturing practices, including HACCP principles. There are two main international standards and guidelines that regulate the establishment and operation of a traceability system: ISO 9001: 2000, a standard for quality management and quality assurance; and ISO 22000: 2005, a standard for food safety and management systems. In the case of forest products, it is important to track the chain of custody of all types of products to ensure that they originated from sustainably managed forests.

## Relevance to enterprise type and supply chain levels

This indicator applies to all levels of the food chain. A traceability system allows the enterprise to prepare for accidents and for non-conformity regarding food safety. The system allows the identification of the product along the food chain and the verification of the information carried in the product labels. It could be considered as a risk management tool to secure food safety, for instance, in an event of food contamination or a food-borne accident, the traceability system enables tracking back the product through the food chain promptly and easily in searching for its cause. It can be also considered as a mechanism to guarantee product transparency to clients and final consumers, and improve their product reliability. An enterprise can adopt a simple or more complex traceability system, depending on the scope of the food chain.

## Unit of measurement

This indicator measures the share of the volume of production that can be identified and recalled along the food chain and in the market place through a traceability system, at least in the last production year.

## How to measure

- Check whether sound good agricultural and manufacturing practices are in place.
- Check whether a written procedure details how the enterprise identifies, and eventually recall, withdrawals from the market.
- Review the enterprise business records regarding the volume of production for at least the last production year, and verify the way the product is identified when advancing to the next stage of the food chain, or to the market place.
- Check for any record on the product that will allow following its movement through the different stages of the production, processing and distribution, and to recall it when required.
- Calculate the share of the volume of production that can be followed and recalled through the different stages of the food chain and the market place.
- Check in the production, processing and distribution department for any mechanism and procedures in place that can identify, follow and recall the product through the food chain.

## Rating

**Dark Green score:**

- Complete product information (i.e. ingredients, processing inputs) is available across the supply chain due to tracking and traceability systems; AND
- 100% of the total volume of production for at least the last year has a traceability system in place; AND
- The enterprise is able to provide evidence of a traceability system in place and it can be proven at least yearly under recall mock tests throughout the enterprise activities; AND
- The enterprise has evidence that measures are taken when results of tests do not comply with traceability objective.

**Red score:**

- 0% of the total volume of production for a given period has a traceability system in place; OR.
- The enterprise has not advanced in designing and adopting a traceability system.

## Limitations

This indicator does not measure the effectiveness of the traceability system to identify and recall the product through the food chain and at the market place.

## Sources of information

**Codex Alimentarius Commission**. 2006. Principles for traceability/product tracing as a tool within a food inspection and certification system. CAC/GL 60-2006. FAO and WHO.

**Codex Alimentarius Commission.** Accessed on Sept. 2013.

**FAO**. *Labeling and certification*. FAO Fisheries and Aquaculture Department Rome. Accessed on Sept. 2013.

**FAO**. *Ecolabeling in Fisheries Management*. FAO Fisheries and Aquaculture Department Rome. Accessed on Sept. 2013.

**FMRIC**. 2007. *Handbook for introduction of food traceability systems (Guidelines for Food Traceability).* Food Marketing Research and Information Center.

**International Organization for Standardization**. *ISO 22000: 2005. Food safety management systems – Requirements for any organization in the food chain*. Accessed on Sept. 2013.

**International Organization For Standardization.** *ISO 9001: 2000. Quality Management Systems – Requirements*. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# CERTIFIED PRODUCTION (C 3.3.3)

GOVERNANCE
PRODUCT QUALITY AND INFORMATION (C 3 )
CERTIFIED PRODUCTION (C 3.3)

## Description

Certified production enables an enterprise to assure its customers of the sustainability of the entire supply chain. It is a growing field and is gaining credibility, as very large and powerful enterprises are subscribing to it, and investing in ensuring sustainable production across the supply chain. Increasingly, consumers are demanding certification, to the extent that certified agriculture products are increasing their market share at significant rates. Consumers are also becoming wary of self-certification schemes, where producers or marketers create non-independent "certification" by awarding themselves a brand which mimics independent certification. By contrast, certified sustainable production employs independent or collaborative verification systems, with transparent auditable protocols. Certified production might include organic standards, both third party and participatory guarantee systems, HACCP food safety systems, Fairtrade, Rainforest Alliance, Forest Stewardship Council, Marine Stewardship Council, Aquaculture Stewardship Council, or other voluntary sustainability standards. Certification standards, which are closely associated with large producers and marketers, are subject of some controversy, as to who's interests are given primacy in decisions taken.

## Relevance to enterprise type and supply chain levels

With the rapid growth of demand for certification, it seems likely that certified production will become the norm in much of the supply chain. Care will need to be exercised to ensure that certification is accessible and relevant to small producers and those in remote communities. This creates the risk that the very standards and certifications being employed to improve the livelihoods of small-scale producers actually excludes them from premium markets thus, making their position relatively worse. New collaborative systems such as Participatory Guarantee Systems are overcoming some of these concerns. Producers, food processors and exporters have long being required to comply with more stringent food safety and phyto-sanitary requirements coming from official regulatory agencies and private buyers. In international trade, B2B certification standards have become more common in global food procurement, resulting in either compliance or, in many cases, exit. Agriculture is a demand-driven system; as demand grows, food flows. Some enterprises will be formed in markets where the creation of demand will be required to encourage sustainable production. For example, if an entrepreneur wants to start an urban, organic, locally-sourced food distribution business, initially she may have to compromise by sourcing some produce from outside the district, or from uncertified suppliers. As the market for her business grows, she may be able to encourage more locally-certified production because she has established a viable market.

### Unit of measurement

» This metric is more important internally than externally, as it will be of most use in measuring progress towards a fully certified procurement system.
» The % of certified sustainable product generated, distributed and procured will be the primary measure.

### How to measure

Using procurement, distribution and production records, there is need to establish:
» That all procurement, distribution and production is assessed as certified or not, and that this is regularly recorded.
» An assessment is in place for any non-certified procurement, distribution and production which details the problem with the procurement, reason for the decision, plan to remedy and date for review.
» The enterprise has evidence that it transparently reports to its stakeholders on its progress towards certified sustainability procurement, distribution and production.

### Rating

**Dark Green score:**
» The enterprise keeps a procurement record which identifies the certification status for all procurement, distribution and production; AND
» The enterprise is able to provide evidence of assessments for any non-certifiable procurement, distribution or production, and this assessment details the problem, reason for the decision, plan to remedy and date for review; AND
» The enterprise has evidence that it transparently reports its progress towards certified procurement, distribution and production to its stakeholders.

**Red score:**
» The enterprise has no records of certification of its procurement, distribution or production; OR
» The records of certified procurement, distribution or production are not independently verified or are self-awarded; OR
» The enterprise' claims to stakeholders of certified supply cannot be proven.

### Limitations

Certified production still occupies a relatively small share of global markets; in the case of organic (i.e. the most widely available certified products), this represents about 2% of food and beverage sales. In some cases, small suppliers will have limited control or influence over certification bodies and may be unfairly excluded from certification due to scale or remoteness. In addition, certification does not ensure sustainability performance of the enterprise when certification standards may not cover all aspects of sustainability. Enterprises may have in place, in addition to, or as an alternative to, certification mechanisms for ensuring sustainability in their supply chain which may be taken into consideration.

## Sources of information

**Aquaculture Stewardship Council.** Accessed on Sept. 2013.

**Codex Alimentarius Commission.** 2001. Guidelines for Organically Produced Foods. Joint FAO/WHO Food Standards Programme.

**FAO**, 2011. *FAO guidelines on aquaculture certification.* Version approved by the 29th Session of Committee on Fisheries. Rome.

**FAO**. 2009. Guidelines for the ecolabeling of fish and fishery products from marine capture fisheries. *In Private standards and certification in fisheries and aquaculture – Current practice and emerging issues*. Accessed on Sept. 2013.

**FAO**. 2011. Product certification and ecolabeling for fisheries sustainability. *FAO Fisheries Technical Paper* n. 422.

**FAO.** Hazard Analysis Critical Control Point. Aquaculture and Fisheries. Accessed on Sept. 2013.

**Marine Stewardship Council.** Accessed on Sept. 2013.

**Potts, J., Van der Meer, J., Daitchman, J.** 2010. *The state of sustainable initiatives: sustainability and transparency*. International Institute for Sustainable Development (IISD) and IIED.

**Rainforest Alliance.** Accessed on Sept. 2013.

**SAI Platform**. 2013. Sustainable sourcing of agricultural raw materials. A practitioner's guide. SAI Platform.

**SGS**. SGS Chain-of-custody certification for forest products. Accessed on Sept. 2013.

**The Finance Alliance for Sustainable Trade**. FAST Shared Impact Assessment and Measurement Toolbox. version 1.0. Document FAST SIAMT Full List of Indicators. Accessed on Sept. 2013.

**Whelan, T.** 2013. *Seven innovations driving certified-sustainable markets of the future*. GreenBiz.com.

**World Bank**. 2005. *Food Safety and Agricultural Health Standards. Challenges and opportunities for Developing Country Exports*. Poverty Reduction and Economic Management Trade Unit. Report 31207.

INDICATOR NAME **REGIONAL WORKFORCE (C 4.1.1)**
DIMENSION **ECONOMIC**
THEME **LOCAL ECONOMY (C4)**
SUB-THEME **VALUE CREATION (C 4.1)**

## Description

Regional Workforce refers to the employees hired by the enterprise that come from the community, municipality or region where the enterprise operations are based. It distinguishes with those employees that come from other regions, or countries, not directly involved with the community and micro-environment where the enterprise operates. The contribution of the enterprise to the local economy through the employment of local professionals and technicians is a significant component of sustainable development and might benefit the long-term business viability of the enterprise. Local employment and sustainable economic development are two interrelated variables. There are several principles that could frame the value creation of the enterprise to the local economy when hiring regional workforce: it creates an adaptable skilled labour force; it supports employment progression and skills upgrading; it contributes to develop local governance and to build local capacities; it invests in education and training of the selected employees; and it contributes to improve local employment rates through job creation.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain where there are employees.

## Unit of measurement

This indicator measures whether the enterprise has hired during the last 5 years regional employees when similar skills, profile and conditions are offered in relation to other candidates to perform adequately the required duties and responsibilities.

## How to measure

- Review the business records of the last five years and check for the employees' profiles of those that were hired during the period.
- Identify employees' origin and review their personal history.
- For the cases that non-regional employees were hired, check the business records and decisions taken to find out the reasons why another candidate was selected as the most appropriate to conduct the required duties and responsibilities.

## Rating

**Dark Green score:**

- The enterprise has a human resources policy that prioritizes hiring regional employees when similar skills, profile and conditions are offered in relation to other candidates; AND
- The human resource department and/or the staff responsible of hiring new employees are informed and aware of such policy; AND

» The enterprise has hired regional employees during the last 5 years in all the cases that similar skills, profile and conditions have been offered to perform adequately the required duties and responsibilities.

**Red score:**

» The enterprise does not have a human resources policy that prioritizes hiring employees when similar skills, profile and conditions are offered in relation to other candidates; OR

» The enterprise has hired during the last 5 years in all applicable cases non-regional or external candidates when regional candidates offer similar skills, profile and conditions.

## Limitations

This indicator does not measure the working conditions and benefits of the employees.

## Sources of information

**Froy, F. and Giguere, S**. 2010. *Putting in Place Jobs that Last, A Guide to Rebuilding Quality Employment at Local Level*. LEED. OECD.

**International Finance Corporation.** *Investing in People: Sustaining Communities through Improved Business Practices*. Environmental Division. Accessed on Sept. 2013.

**OECD.** LEED Program: Local Economic and Employment Development. Accessed on Sept. 2013.

INDICATOR NAME **FISCAL COMMITMENT (C 4.1.2)**
DIMENSION **ECONOMIC**
THEME **LOCAL ECONOMY (C 4)**
SUB-THEME **VALUE CREATION (C 4.1)**

## Description

Fiscal commitment refers to the enterprise disposition to make effective its responsibility and obligation as a tax contributor by paying the "local" taxes for which it is eligible. "Local" is defined as belonging or relating to a particular area or neighborhood; in this case, it could be referred to municipal, regional and national regulations and taxes. The contribution of the enterprise to the local economy, by paying its correspondent taxes at the appropriate time, is a significant component of sustainable development. In both developed and developing countries, enterprises and individuals contribute to local and national public budgets through the payment of taxes and fees. This income is a major source of revenue for the government used to invest in improving and offering public services, such as infrastructure, security, transportation, electricity, health care, education or environmental protection. In addition to its direct activities and beneficiaries, the enterprise generates value in the local economy through its fiscal commitment and effective accomplishment. The enterprise can also increase its transparency through public reporting of its financial data and tax payments.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures whether the enterprise pays the taxes as indicated by local regulations that are applicable to its business in all countries of its operation.

## How to measure

- Review the business records for a given period and check for the tax reports, which indicate the taxes that the enterprise has paid.
- Review the fiscal local regulations that apply to enterprise in each of the countries of its operations.
- Check whether the enterprise has paid the applicable taxes for the given period.

## Rating

**Dark Green score:**
The enterprise has paid all the local taxes that are applicable and due in all countries of operation.

**Red score:**
The enterprise has not paid any local taxes that are applicable and due in all countries of operation.

## Limitations

This indicator does not determine what are the fiscal local regulations applicable to the enterprise, as it is context-specific. Producers may also be reluctant to provide detailed information for this indicator because of the sensitivity of the information.

## Sources of information

**Owens, J. and Parry, R.** 2009. Why tax matters for development. *Observer* N. 273. OECD.

**OECD.** Global Relations in Taxation – Tax and Development. Accessed on Sept. 2013.

**Norad.** 2012. Tax for Development . *Norad Report.*

**Worlu, C.N. and Emeka**. N. 2012. Tax Revenue and Economic Development in Nigeria: A Macroeconometric approach. *Academic Journal of Interdisciplinary Studies*. Vol. 2. MCSER –CEMAS – Sapienza University. Rome.

INDICATOR NAME **LOCAL PROCUREMENT (C 4.2.1)**
DIMENSION **ECONOMIC**
THEME **LOCAL ECONOMY (C 4)**
SUB-THEME **LOCAL PROCUREMENT (C 4.2)**

## Description

Local Procurement refers to the commitment and effective accomplishment of the enterprise to benefit local economies through procurement from local suppliers. "Local" refers to belonging or relating to a particular area or neighbourhood; in this case, it could be referred to the municipality and region, and to a lesser extent, to the country where the enterprise operates. Procurement from local suppliers contributes to make the economy more dynamic. Supply chain stakeholders grow and could generate value through employment, investment in the community and skills development. Instead of buying its inputs supplies from overseas, the enterprise could establish business relationships with local suppliers and integrating them in the supply chain. By doing so, the enterprise could have significant benefits also, such as influencing the quality of the inputs, supporting the productivity and cost efficiency of its suppliers through the provision of training, technology or financial resources, and the possibility to have regular and personal communication for mutual benefit.

## Relevance to enterprise type and supply chain levels

This indicator applies to all types and sizes of operations, at all levels of the food chain.

## Unit of measurement

This indicator measures whether the enterprise has purchased its inputs/ingredients/products from local suppliers when equal or similar conditions exist, in comparison to non-local suppliers.

## How to measure

» Review the business records regarding the purchase made by the enterprise for a given period.
» Check the origin of all the suppliers that have sold to the enterprise inputs and supplies.
» For cases where non-local suppliers have provided inputs to the enterprise, review whether there are alternative local suppliers that could procure the required inputs under equal or similar conditions.

## Rating

**Dark Green score:**

» The enterprise has developed and applied a procurement policy that prioritizes the purchase of inputs, products and ingredients from local suppliers; AND
» In 100% of the cases where local suppliers can provide the required inputs to the enterprise, under equal of similar conditions in comparison to non-local, the enterprise has selected local suppliers.

**Red score:**
In most cases where local suppliers can provide the required inputs to the enterprise, under equal of similar conditions in comparison to non-local, the enterprise has selected non-local suppliers.

## Limitations

This indicator does not specify what are the equal or similar conditions to be used by enterprises to judge the value in local procurement, versus non-local procurement in terms of for instance, quality and price, as it is subject to each case.

## Sources of information

**International Finance Corporation.** 2011. *A Guide to Getting Started in Local Procurement*. For companies seeking the benefits of linkages with local SMEs. The World Bank Group.

**United Nations Capital Development Fund**. *Procurement for Local Development, A Guide to Best Practice in Local Government Procurement in Least Developed Countries*. Accessed on Sept. 2013.

METHODOLOGICAL SHEETS

# SOCIAL WELLBEING INDICATORS

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# RIGHT TO QUALITY OF LIFE (S 1.1.1)

SOCIAL
DECENT LIVELIHOOD (S 1)
QUALITY OF LIFE (S 1.1)

## Description

Primary producers, small-scale producers and employees in enterprises of all scales have the right to a quality of life that affords time to spend with family and for recreation, adequate rest from work, overtime that is voluntary, and educational opportunity for themselves and their immediate families. In addition, quality of life means that they have the time to produce or procure and prepare healthy meals for themselves and their families that include fresh produce and a culturally appropriate diet. Small-scale producers are able to source products for markets without financial pressures that force them to use all of their land, water, resources and production outputs for sales or export markets in order to garner an adequate income. Quality of life furthermore implies the flourishing of culture, and the ability of all to participate in the collective way of life built over generations by an identified group or society. Defining features of a culture includes one or more of the following: language, religion, ethnicity. The combination of these elements may be expressed in diets, clothing, philosophy, arts, music, architecture, agriculture, business structures, governance structures, celebrations, rituals and other social interactions and customs.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises of all sizes and types (primary production, processing and marketing), as well as all types of ownership structures including cooperatives, single-family businesses, collectivities, community-owned land trusts, tribal associations and corporations. It includes both full and part-time producers or business owners, and is reflective of all business partners involved in the day-to-day management of the operation, as well as all people employed, whether full or part time, year round or seasonal.

## Unit of measurement

This qualitative indicator ensures that all people involved: work healthy hours without compulsory overtime; are enabled to participate in the culture of their choosing, including for example to speak the language of their choice and practice the religion or rituals that they prefer; enjoy a culturally appropriate diet; and have time to spend with family and neighbours.

## How to measure

This indicator measures four components:

- The first component is to assess if the individuals in the enterprise are able to work healthy hours without compulsory overtime. Interviewers should verify specifically for employees that:
  - if employees work more than an average work week (40 to 48 hours), overtime is voluntary and compensated at a rate that is higher than regular working hours;
  - if overtime is occasionally required for harvests or emergencies, employees are compensated for that time and are allowed extra rest days when the period of extra work ends;

- employees have regular break times that are adequate for accessing sanitary facilities, and have time for meals.

With regards primary producers, interviewers should verify that:

- as weekly schedule may fluctuate throughout the year, producers should be able to average a work week of 40 to 48 hours at the end of the year, accounting for peak times where the work may be much longer each week and resting times where it may be less.
- even during peak times, primary producers should be able to take breaks in their daily schedule at least for accessing sanitary facilities and meals.

» The second component concerns individuals ability to participate in a culture of their choice. Interviewers should ask employees and primary producers if:

- they and their families are able to speak the language of their choice, with colleagues who speak that same language at work, or with their families at home;
- they and their families are able to practice the religion of their choice openly, and have adequate time or space to perform religious rituals that they prefer;
- they and their families are able to display art, designs, or other objects of their choice in their homes or on their person without limitations.

» The third component concerns the ability to enjoy a culturally appropriate diet. Interviewers should verify that for both employees and primary producers:

- their daily schedule allows adequate time for procuring or producing healthy and fresh food (e.g. fresh vegetables) either from a store or their own garden;
- their daily schedule allows adequate time for preparation and consumption of meals;
- they and their families are able to maintain a healthy nutritional intake, without risk of malnutrition or obesity;
- if food is provided at the workplace, it is fresh and supports a healthy diet.

» The fourth component concerns time spent with family and friends. Interviewers should verify that for both employees and primary producers:

- they are able to spend meal times and at least adequate hours with their families to play an active role in family activities and needs. For example, parents have time to help their children with schoolwork, help their spouse with household needs, help their extended family when needed with emergencies, etc;
- they and their families are able to engage in recreational activities of their choice without limitation or oversight;
- they are allowed to have guests or visitors, and have time to enjoy friendships.

Interviews with primary producers and their families and with employees in general should show that they feel free to lead peaceful and productive lives. Interviews should confirm that either through cash earnings, mutual aid, barter or sharing with neighbours, the community or tribal group, primary producers and employed workers have a good quality of life.

### Rating

**Dark Green score:**

All interviewed primary producers, employees and their families report that they live free from oppression, in peace, security and mental and physical health, and that they are able to live by all the guidelines specified above, with adequate time for personal and family needs.

**Red score:**

» Poverty prevents primary producers or employed workers from enjoying a culturally appropriate diet, from living with adequate shelter, from living in security with time for family life and culture, free from anxiety, or with the constant need for exhausting underpaid labor; OR
» Employees expression of culture is limited by the employing enterprise; OR
» Outside forces prevent primary producers or employed workers from speaking their native language, practicing their chosen rituals and religion, and accessing the kind of education they choice; OR
» Overtime is compulsory and not fully compensated.

## Limitations

What constitutes a good quality of life is subjective and relative. It is not possible to quantify in one summary measurement. To measure quality of life, it is necessary for an investigator, who speaks the local language and who is familiar with local attitudes/customs to conduct individual interviews according to SAFA's suggested methodology.

## Sources of information

**FAO**. 2012. *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forest in the context of national food security*.

**Graham, J., Charles, A. and Bull, A.** 2006. *Community Fisheries Management Handbook*. Gorsebrook Research Institute. Saint Mary's University.

**United Nations**. *Universal Declaration of Human Rights* (articles 18, 19, 24, and 27). Accessed on Sept 2013.

INDICATOR NAME **WAGE LEVEL (S 1.1.2)**
DIMENSION **SOCIAL**
THEME **DECENT LIVELIHOOD (S 1)**
SUB-THEME **QUALITY OF LIFE (S 1.2)**

## Description

A living wage is the amount paid to employees or earned by an individual within a standard work-week (that does not include over-time or exceed normal working hours) that meets basic needs for subsistence, including nutrition, clothing, health care, education, potable water, child care, transportation, housing, and energy, plus savings.

## Relevance to enterprise type and supply chain levels

These rights apply to enterprises of all sizes and types (primary production, processing and marketing), as well as all types of ownership structures including cooperatives, single-family businesses, collectives, community-owned land trusts, tribal associations, and corporations. It includes both full and part-time producers or business owners and is reflective of all business partners involved in the day-to-day management of the operation, as well as all people employed whether full or part time, year round or seasonal.

## Unit of measurement

This is a quantitative indicator that measures the percent of employees that are paid a living wage. All employees, workers, or hired help of any kind whether permanent or temporary, full-time or part-time, are part of the scope of this indicator. It is critical that wages paid for work at the operation to employees hired through sub-contractors (such as labor contractors, temporary agencies and others), are also considered.

## How to measure

» Calculate living wage for the region where the enterprise is located. Note that living wage is generally higher than standard minimum wage, or prevailing average wage for an industry. A region's living wage could be determined by using on-line calculators or own estimates. To this end, major factors that make-up the cost of the basic quality life for one person should be considered. According to the ILO, these factors include at least: cost of nutritious low-cost diet, cost of basic acceptable housing, cost of clothing and footwear, and other costs required for a decent life. These other costs may depend on the regional standard of living, but also depend on the circumstances in the personal life of the employee, including: household size needing to be supported, the number of full-time equivalent workers in the household, and margin for savings or funds for emergencies. Resources such as the ILO report (see below) guide readers on what must be included in a living wage.

» Next, calculate the percentage of the enterprise employees that are paid at least at, or above, this rate. To determine if employees are paid a living wage, consult pay-stubs or bookkeeping records and interview a random sample of employees to ensure that payments were made on-time and as recorded.

## Rating

**Dark Green score:**
100% of employees and personnel involved in the enterprise are paid a living wage.

**Red score:**

» Paying employees below the poverty rate for the same region; OR
» Paying employees below the prevailing average rate for the same industry; OR
» Paying employees by piece-rate at a wage that requires more than standard work-week hours, or encourages unhealthy conditions to reach a living wage; OR
» Docking of pay, or withholdings by the employer, for punishment purposes.

## Limitations

Living wage does not take into consideration the full extent of issues present in the employer-employee relationships involving wage rate, including such issues as fair negotiation, equal pay for equal work between diverse groups of employees, and the presence or absence of a fair pay scale that allows for raises, equal access to bonuses or profit sharing, and other benefits and schemes. In addition, economic conditions may temporarily prevent an operation from paying a living wage. In these instances, despite a low score on this indicator, operations may still progress toward social sustainability by adopting profit-sharing plans, working with employees to reduce operating costs to reach living wage goals, and other creative measures.

## Sources of information

**Anker, R.** 2011. Estimating a Living Wage: a Methodological Review. *Conditions of Work and Employment Series* No. 29. ILO. Geneva.

**MIT**. Living Wage Calculator for the USA. MIT. Accessed on Sept. 2013.

**UNDP**. Human Development Index. *Human Development reports*. Accessed on Sept. 2013.

INDICATOR NAME **CAPACITY DEVELOPMENT (S 1.2.1)**
DIMENSION **SOCIAL**
THEME **DECENT LIVELIHOOD (S 1)**
SUB-THEME **CAPACITY DEVELOPMENT (S 1.2)**

## Description

For enterprises to be sustainable, they must provide conditions for stable employment, internal advancement, capacity development and growth for employees. Employees who are learning and growing and feel that they have a promising career path are more likely to do their best work and contribute to the improvement of the enterprise. Similarly, primary producers have the right to adequate resources so that they can increase their own skills and knowledge, and assure the future of their enterprise by providing opportunities for learning and training for members of their family, community or tribe.

## Relevance to enterprise type and supply chain levels

These rights should be considered inclusive for all employees and for primary producers and suppliers, in all types of ownership and production models. This indicator may be applied to enterprises at all levels of the supply chain (primary producers, processors, marketers). These rights should apply to all sizes of enterprise, as well as all types of ownership structures, including cooperatives, single -family businesses, collectives, community-owned land trusts, tribal associations, and corporations. Opportunities for capacity development should include both full and part-time producers or business owners, men and women. Spouses and relatives living and/or working as owners of their own enterprises must be included, along with indigenous peoples or tribal groups who hold land communally.

## Unit of measurement

This qualitative indicator measures whether employees have opportunities for capacity development and advancement within the enterprise, as well as whether primary producers have adequate resources to build their own capacities and their family members, in order to adopt improved techniques and provide for succession to the next generation.

## How to measure

- Interview employees to find out if they have opportunities for capacity development, advancement within the enterprise where they are employed. Examples include:
  - employees may attend trainings, conferences, or other learning and networking events;
  - employees may discuss opportunities for advancement openly with management, and may develop plans for acquisition of necessary skills;
  - employees can give examples of colleagues, or their own experience, of being promoted fairly, or of being given by the enterprise, opportunities for career development.
- Interview primary producers to determine whether they and their family members have the possibility to adopt improved techniques that make their enterprises more productive and efficient, more environmentally sound and innovative, and more profitable. In addition,

interviewers should verify if the next generation (or future management) is being trained, has been identified, and is motivated and equipped to take over the operations of the enterprise.

## Rating

**Dark Green score:**
The enterprise meets all criteria mentioned above, as they apply.

**Red score:**

» Employers hire from outside their enterprise when they want new skills or greater capacity, and do not give their own workers the chance to advance ; OR

» Primary producers fail to adopt innovations and their children leave to seek opportunities elsewhere; OR

» Training programmes are only open to men or members of a particular ethnic, racial or economic group.

## Limitations

Large operations have more opportunity for advancement for their employees than smaller enterprises. However, even small-scale operations with a very small number of seasonal employees may be able to provide educational or training opportunities for them. Examples include providing transportation or access to after-hours language classes, training employees on different equipment or crops each season, and generally collaborating with employees to identify their interests and plan a training route to help them accomplish those goals. In addition, small-scale producers do have opportunities for their own advancement, including networking to identify best practices with neighbours and other farmers in the region, seeking and attending trainings from extension agents, or local non-profits on improved practices, and recruiting apprentices or interested family members to ensure that the next generation of farm management is ready when the time comes. A well-established system of volunteer exchange and apprenticeship on sustainable properties is WWOOF, or World Wide Opportunities on Organic Farms.

## Sources of information

**International Labour Organization.** *ILO Declaration on Social Justice for a Fair Globalization.* Accessed on Sept. 2013.

**United Nations**. *Universal Declaration of Human Rights* (article 26). Accessed on Sept. 2013.

**World Wide Opportunities on Organic Farms**. Accessed on Sept. 2013.

INDICATOR NAME

# FAIR ACCESS TO MEANS OF PRODUCTION (S 1.3.1)

DIMENSION SOCIAL
THEME DECENT LIVELIHOOD (S 1)
SUB-THEME FAIR ACCESS TO MEANS OF PRODUCTION (S 1.3)

## Description

Primary producers' rights to equal access to means of production is critical to their ability to build a decent livelihood for themselves and their families. The means of production include knowledge, equipment and facilities required for the producer to meet the output level necessary to maintain a decent livelihood and cover their costs of production, including paying a living wage to their employees. When primary producers have equal access to the means of production, they are able to access and implement trainings or other knowledge transfer regarding the best practices for their farm. They are able to purchase or make equipment and materials that allow for their operation to run efficiently and complete their harvests without facing debt loads that could destabilize their operation.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises of all sizes and types (primary production, processing and marketing), as well as all types of ownership structures including cooperatives, single-family businesses, collectives, community-owned land trusts, tribal associations, and corporations. It includes both full and part-time producers, or business owners, and is reflective of all business partners involved in the day-to-day management of the operation, as well as all people employed whether full or part time, year round or seasonal.

## Unit of measurement

This qualitative indicator measures whether primary producers have access to the means of production, meaning the knowledge, facilities and equipment necessary for the enterprise owners, managers and employees to maintain a decent livelihood.

## How to measure

This indicator is connected to the outcome of the indicators in the sub-theme Right to Quality of Life. If the enterprise is found not to fulfill a decent quality of life or living wage for its employees, managers, or owners, the assessor should consider if that score is the result of a lack of fair access to the means of production, as follows:

- First, assess is if the enterprise has access to sufficient knowledge about their practices, in order to make beneficial improvements for their operation. Interview owners and managers to assess if they have access to any of the following:
  - agricultural extension services that are regular and helpful;
  - annual conferences, trainings, or events that they regularly attend or send managers to that are opportunities for gaining skills;
  - courses at local or online colleges, foundations, or other programmes to teach best practices and skills;

- relationships that are well maintained with associations, non-profit foundations, cooperatives or other such collective groups that promote networking and peer-based education of best practices;
- trainings offered free of charge by major buyers;
- other opportunities that allow the enterprise to regularly update their operations to best practices for efficiency and sustainability.

» Second, assess is if the enterprise has access to necessary equipment and facilities. Interview owners and managers to assess if the enterprise has leverage enough to:

- maintain sufficient facilities without buildings or equipment going into disrepair that significantly slows-down or impacts production;
- purchase, construct or maintain sufficient storage and other units to prevent post-harvest losses, contamination and other degradation of outputs;
- access necessary parts, upgrades, and other components needed or implementing best practices without risking stifling debt that would prevent the enterprise from complying with other areas of sustainability (such as paying a living wage).

## Rating

**Dark Green score:**
The enterprise meets all above-mentioned criteria.

**Red score:**

» The enterprise is unable to maintain facilities, and buildings or equipment are in disrepair; OR
» Significant post-harvest losses, contamination, or other loss of product occur that reduce profits, and would be preventable with better equipment or implementation of best practices; OR
» The enterprise does not have access through any conduit to further training or knowledge and skill building regarding their operations.

## Limitations

If the rights of primary producers to the means of production are not secured, primary producers receive a red score in SAFA, whereas the conditions leading to them not being able to practice these rights are most often out of their control. Thus, the final reading should be read with caution in order not to give the indication that primary producers are "punished" for their lack of rights; however it is important to reflect to the enterprise that this is an area of instability.

## Sources of information

**United Nations**. *Universal Declaration of Human Rights* (article 17). Accessed on Sept. 2013.

INDICATOR NAME

# FAIR PRICING AND TRANSPARENT CONTRACTS (S 2.1.1)

DIMENSION SOCIAL
THEME FAIR TRADING PRACTICES (S 2)
SUB-THEME RESPONSIBLE BUYERS (S 2.1)

## Description

For sustained trading relationships to exist, buyers must pay primary producers prices for their products that reflect the real cost of the entire process of sustaining a regenerative ecological system. This includes supporting a decent livelihood for primary producers, their families and workers by providing living wages that cover producer's costs. Fair pricing becomes possible when buyers agree to negotiate with their suppliers on terms of equality before establishing contracts, whether written or verbal, that set the terms of trade. When bargaining in good faith occurs, all parties agree to transparency, to share financial records when requested, and to share information about existing markets.

## Relevance to enterprise type and supply chain levels

Buyers fair pricing and negotiated contracts applies to all trading relationships with suppliers, in all types of ownership and production models.

## Unit of measurement

The qualitative indicator focuses on the type of policies and practices of buyers that recognize and support two things: primary producers' rights to fair pricing; and primary producers rights to fair contracts or agreements.

## How to measure

First, assess how the buyer establishes contracts with suppliers, and if these contracts are fair, transparent, and cover at least the minimum to allow for a fair trading relationship. To do this, the assessor should: conduct a review of any written contracts; and conduct interviews with a variety of suppliers. Interviewers should be prepared to especially focus on primary producers, and should verify, in both the paperwork and the interviews, whether:

- the negotiation process is clearly stated and suppliers understand it;
- the conflict resolution process is clearly explained and suppliers know how to proceed in case of conflict;
- the terms for termination of the contract is clearly defined and suppliers understand them;
- any expectations regarding quality, quantity, timing and other specifications about delivery is clearly defined and suppliers understand them;
- either party is free to terminate the contract;
- any requirements, such as investments or upgrades, is made clear upfront in the contract and suppliers understand them;

- the contract is established, with secure terms for a long enough period of time, to cover any debts or losses to the producer, as a result of required investments or upgrades;
- it is clear that contract terms do not limit the producers' ability to grow other crops, sell to other buyers, or participate in other markets, and suppliers feel free to pursue these activities;
- in the case of non-written verbal agreements, suppliers and buyers exhibit a mutual and similar understanding of all of the above terms.

Second, assess if the price established in the contract or agreement is a fair price that covers the producer's costs of production. To do this, the assessor should: review the written contracts for pricing statements; interview suppliers regarding price paid and how it was established; and review financial information of the buyer's enterprise, in order to ensure that the price paid and agreed match. Interviews with suppliers will verify whether:

- the buyer is open to negotiation, based on evidence of the producer's costs of production;
- the price paid reflects an agreement and dialogue between the parties involved;
- the pricing agreement is stable and both parties understand the terms for changes in pricing;
- the price paid cover at least:
  - a living wage for the producer while they are working on this contract;
  - ability of the producer to pay a living wage to employees whose work is necessary to meet this contract;
  - costs of production including on-farm expenses, transportation and storage required to meet the terms of the contract;
  - any upgrades or other investments required by the contract;
  - a small amount of savings should be left-over for the producer to invest into their business after the above terms are met.
- if a price that covers a given specification above cannot be paid due to buyer's financial limitations, a dialogue is established and a plan to increase the price with the increase in profit to the buyer is made clear to both parties.

### Rating

**Dark Green score:**

100% of trade deals with suppliers are based on contracts with buyers that include the rights to negotiate the terms of trade, a conflict resolution process for resolving differences, and agreement that trade relations will not be terminated, except for just cause.

**Red score:**

- Buyers set prices without consultation with suppliers; OR
- Buyers retaliate against suppliers who raise issues, or complaints about the terms of trade; OR
- Buyers terminate trade agreements with suppliers without just cause; OR
- Agreements lack mutual understanding on the conflict resolution process.

## Limitations

» Primary producers have to be interviewed by someone who speaks their language and has a good understanding of local conditions and attitudes in order to determine whether fair prices and negotiated contracts and/or agreements have been guaranteed.

## Sources of information

**International Labour Organization**. 2008. *ILO Declaration on Social Justice for a Fair Globalization*.

**United Nations**. *Universal Declaration of Human Rights* (articles 23 and 25). Accessed on Sept. 2013.

INDICATOR NAME **RIGHTS OF SUPPLIERS (S 2.2.1)**
DIMENSION **SOCIAL**
THEME **FAIR TRADING PRACTICES (S 2)**
SUB-THEME **RIGHTS OF SUPPLIERS (S 2.2)**

## Description

Suppliers, particularly primary producers, rights to freedom of association and collective bargaining are basic freedoms that form the necessary basis and prerequisite conditions for fair trading with buyers. This indicator refers to buyers treating the primary producers who supply them with farm products with respect, as well as other suppliers such as processors and other businesses.

## Relevance to enterprise type and supply chain levels

This indicator is inclusive of buyers in all trading relationships with suppliers, in all types of ownership and production models.

## Unit of measurement

This qualitative indicator measures whether buyers explicitly recognize and support in good faith primary producers and suppliers' rights to freedom of association and to collective bargaining for all contracts and agreements. This indicator shall be measured and rated by whether the buyers recognize these fundamental rights of all suppliers.

## How to measure

The right to freedom of association may be extended to suppliers even if suppliers are not actively participating in an association. This indicator is measured not by whether or not suppliers have formed associations or have negotiated in groups, but by whether or not the buyers do recognize such associations. This right might take the following forms:

- suppliers freedom to share information about their contracts with other suppliers;
- suppliers freedom to appoint a representative, or have a counselor present during their negotiations with the buyer;
- suppliers freedom to review their contract in a timely manner and seek advice from outside parties;
- suppliers' freedom to meet together to discuss mutual negotiation with the buyer, including in the form of a group.

Measuring buyer's recognition of the rights of suppliers' freedom of association and to collective bargaining, with special attention to primary producers, includes at least the following metrics:

- Review of any written or formal contracts with suppliers, or discussion of verbal agreements to confirm said rights and freedoms are extended to all. Buyers should make it clear to suppliers that they have this right.
- In the case of verbal contracts, interviews with both producers in their native languages and their buyers to confirm that these rights and freedoms are clearly understood by all parties involved.

» Interviews with a selection of suppliers, especially with primary producers and their families in their native languages, to confirm that they understand that such rights can be initiated at their discretion.
» Review of purchase history by interviewing procurement managers, or the enterprise owners, as well as interviews with recent suppliers, to confirm that any past attempts on suppliers' behalf to organize a buying group, appoint a representative for negotiation, or discuss contract terms as a group (as well as other forms of association), were recognized and respected.

## Rating

**Dark Green score:**
Buyers have long-term relationships of trust with 100% of their suppliers, based on their rights to freedom of association and collective bargaining.

**Red score:**
» Buyer retaliation against suppliers for initiating their rights and freedoms, including canceling of contracts and verbal threats against producers; OR
» Restrictions on transparency and fair negotiations; OR
» Refusal to allow supplier to have representative(s) of their choice present during any negotiations; OR
» Buyer making arbitrary changes to contract without agreement of supplier; OR
» Buyer pits one producer (or group of producers) against another; OR
» Failure to allow producers to share proposed contracts or agreements with family members and/or seek and retain legal counsel.

## Limitations

Although this indicator does not apply for primary producers performing an assessment on their own operation, it is critical that primary producers who are suppliers to businesses performing an assessment are interviewed. This may be difficult to accomplish, but the relationships between primary producers, especially small or independent producers, and large businesses and buyers, are critical points for ensuring fair relationships, based on balanced power and equal negotiation. Primary producers may have to be interviewed by someone who speaks their language and has a good understanding of local conditions and attitudes to determine whether these rights and freedoms are clearly understood and respected.

## Sources of information

**FAO**. 2011. Producers' organizations in aquaculture. Accessed on Sept. 2013.

**International Labour Organization**. 1948. *Freedom of Association and Protection of the Right to Organize Convention.* (87/1948). Part 1 :"Freedom of Association". Accessed on Sept. 2013.

**United Nations.** *Universal Declaration of Human Rights*: Article 20. Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# EMPLOYMENT RELATIONS (S 3.1.1)

SOCIAL
LABOUR RIGHTS (S 3)
EMPLOYMENT RELATIONS (S 3.1)

## Description

Employment Relations refer to enterprises maintaining legally-binding transparent contracts with all employees that are accessible and cover the terms of work. Employment is compliant with national laws on labour and social security. Verbal terms of employment should be discouraged, however they are considered contracts by courts.

## Relevance to enterprise type and supply chain levels

Transparent contracts, or work agreements as defined herein, should be considered inclusive for enterprises of all types and scales from one employee to large plantations or factories, in all types of ownership and production models.

## Unit of measurement

This qualitative indicator measures whether the enterprise has written agreements with their employees that meet at least national and international labour treaties including social security. For small-scale producers, it is more likely that only one or two employees are involved and may have verbal work agreements. In this case, this indicator measures whether there is a clear understanding of the wages and conditions of work between the employer and employees.

## How to measure

Review written contracts, employee files and other information regarding work agreements and undertake interviews with a selection of employees, in order to verify that:

- Employees have legally binding, written contracts on file that are updated.
- Contracts meet the specifications required by national or international treaties.
- Employees have signed the contracts and have access to them and their personnel file upon request.
- Contracts include social security provisions.
- Contracts cover the following specifications about the job:
  - type of work and activities expected of the employee;
  - required hours and scheduling arrangement;
  - terms for discipline and termination;
  - clear process for conflict resolution and grievances;
  - overtime policy;
  - compensation and pay, including any policies for bonuses, benefits, etc;
  - vacation, or time-off policy;
  - recognition of freedom of association and collective bargaining.
- Contracts are preferably written in the employee's native language, or a language clearly understood by the employee.

- In interviews with employees, the employees clearly understand the terms of the contract and their understanding matches what is recorded in the contract itself.
- In interviews with employees, the employees confirm that the employer abides by the terms laid out in the contract.
- In the case of large enterprises, review the case load and/or public record regarding the employer. If a large amount of cases exist against the employer, this may be a sign that the employer does not abide by the terms in their contracts.

## Rating

**Dark Green score:**
In written policies and in practice, enterprises provide legally binding contracts for all employees that meet labour laws and treaties, and all of the components listed above are met.

**Red score:**
- No written contract or terms of employment are provided; OR
- Contracts do not meet national and international labour laws and treaties; OR
- Contract terms are not clear to employees; OR
- Employees (or both employers and employees) are not literate and no provision is made for third party verbal contract terms communications; OR
- The contract is not made available to employees upon request.

## Limitations

Lack of native language translation and the challenges of illiterate workers or primary producers pose on-going concerns. Nevertheless, written contracts should be strongly encouraged, as this creates a much more transparent and empowering workplace. Small-scale operations may not have written contracts in all scenarios; in the case of verbal agreements, the components listed above should still be present in mutual and similar understandings on behalf of the employees and the employers.

## Sources of information

**GESS**. Social Security (Minimum Standards). Convention No. 102/1952 Accessed on Sept. 2013.

**International Labour Organization**. 1962. Equality of Treatment (Social Security) Convention. No. 118/1962.

**International Labour Organization**. 1964. Employment Policy Convention. Convention No. 122/1964. Normlex.

**International Labour Organization**. 1982. Maintenance of Social Security Rights Convention. No. 157/1982.

INDICATOR NAME **FORCED LABOUR (S 3.2.1)**
DIMENSION **SOCIAL**
THEME **LABOUR RIGHTS (S 3)**
SUB-THEME **FORCED LABOUR (S 3.2)**

## Description

While legal slavery has been abolished in the countries where it has been practiced historically, it still exists in many surreptitious and hidden forms. Employers, or their hired labour contractors, or crew leaders, keep workers' passports or other documents, thus preventing them from leaving or protesting against work and living conditions they might find abhorrent. Workers take positions in foreign countries only to discover that the wages or living conditions are not what they were promised; often, they find themselves stranded without the means necessary to switch to another job, or to return home. Unfortunately, there are all too many variations on this theme in workplaces around the world. A sustainable enterprise ensures that no forced labor is part of their supply chain.

## Relevance to enterprise type and supply chain levels

These rights apply to enterprises of all sizes and types (primary production, processing and marketing), as well as all types of ownership structures including cooperatives, single-family businesses, collectives, community-owned land trusts, tribal associations, and corporations, including both full and part-time producers, or business owners, and are reflective of all business partners involved in the day-to-day management of the operation, as well as all people employed whether full or part time, year round or seasonal.

## Unit of measurement

This qualitative indicator intends to measure whether the enterprise employs people who are not free to quit or who cannot raise grievances without fear of retaliation.

## How to measure

Undertake strictly confidential interviews with employees to learn whether they work voluntarily or feel coerced. In addition:

- Review enterprise policies on handling of employee documents, and ask employees to verify if their documents were handled properly and if no threats were made.
- Review public records or reports of enterprises contracting for prison labor.
- Review financial statements and ask employees if any wages were withheld, or if any threat was made to withhold earned wages in exchange for completion of a quota of work or any other reason.
- Ask employees if any family members (spouses, children) were expected to, or forced to, work in exchange for something such as offering one employee a job or different contract terms.
- Review contracts for imported workers and compare with existing conditions.
- Inspect facilities and if possible, employee housing. Ask employees if any limitations, such as curfews or lock-ins, are used to prevent employees from leaving the property at times.

## Rating

**Dark Green score:**
The use of forced labour is forbidden in all written policies and in practice.

**Red score:**

- Employer withholds full earned wages for any reason, including until the end of a harvest season or completion of some quota of work; OR
- Employer pressures one spouse to continue working, in order to preserve the position of the other spouse, or for other reasons; OR
- Employer retaliates by reducing pay, or with termination, when employees raise important grievances; OR
- Employer threatens to turn undocumented worker over to border patrol to force acceptance of low wages or poor working conditions; OR
- Employer uses physical or psychological coercion to pressure worker to remain on the job, or to accept low wages, or poor or dangerous working conditions.

## Limitations

The interviewer who verifies the absence of coercion must speak the language of the employees, and conduct interviews in conditions of strict confidentiality.

## Sources of information

**International Labour Organization**. 1930. *Convention concerning Forced or Compulsory Labour*. No. 29.

**International Labour Organization**. 1957. *Abolition of Forced Labour Convention*. No. 105.

**UN.** *Universal Declaration of Human Rights* (article 4). Accessed on Sept. 2013.

INDICATOR NAME **CHILD LABOUR (S 3.3.1)**
DIMENSION **SOCIAL**
THEME **LABOUR RIGHTS (S 3)**
SUB-THEME **CHILD LABOUR (S 3.3)**

## Description

Child Labour refers to work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. Whether child labourers work on their parents' farms, are hired to work on the farms or plantations of others, or accompany their migrant farm-worker parents, the hazards and levels of risk they face can be worse than those for adult workers. Whether or not particular forms of "work" can be called "child labour" depends on the child's age, the type and hours of work performed, the conditions under which it is performed and the objectives pursued by individual countries. The answer varies from country to country, as well as among sectors within countries (ILO Convention 182). Not all work done by children should be classified as child labour that is to be targeted for elimination. Children or adolescents' participation in work that does not affect their health and personal development, or interfere with their schooling, is generally regarded as being something positive. This includes activities such as helping their parents around the home or family garden, assisting in a family business or earning pocket money outside school hours and during school holidays. These kinds of activities contribute to children's development and to the welfare of their families; they provide them with skills and experience, and help to prepare them to be productive members of society during their adult life.

## Relevance to enterprise type and supply chain levels

The allowance for appropriate work by children and adolescents and the prohibition on child labour, as defined herein, should be considered inclusive for enterprises of all types and scales, in all types of ownership and production models. Enterprises should also require that all business partners, subsidiaries and sub-contractors refrain from hiring underage workers.

## Unit of measurement

This qualitative indicator measures whether the enterprise, or its subsidiaries or sub-contractors, employ minor children - 16 years of age or younger - who are working full time or more, engaged in jobs that are dangerous to them physically, mentally or morally, and who are deprived of the opportunity to live as children, to attend school and/or other appropriate training.

## How to measure

- Review enterprise policies and employment records to ensure that no employees under the age of 16 were regularly employed in a way that would interfere with their rights, including:
  - their work does not interfere with their schooling, either their ability to complete homework or attend classes;
  - their work is not physically dangerous;
  - they are not exposed to toxic materials or expected to complete hazardous tasks;

- their work hours do not interfere with a healthy sleep schedule, or with their ability to eat healthy meals with their family;
- they are not asked to complete tasks that may be morally or mentally damaging;
- they are not placed in social situations that may endanger them physically or mentally;
- any workers 16 or younger were employed through special agreements that provided educational, skill building, or apprenticeship opportunities which were carefully supervised and met all of the above criteria.

» Conduct confidential interviews with youthful employees to ascertain their true age, and to learn if they have left school voluntarily, and ensure that their employment meets the above criteria. Interview other employees, or members of the community, in order to ensure that there have been no public complaints of child labour observed.

» Review company documents, or ask the owner about their knowledge of the practices of major business partners. The enterprise should work to ensure that they do business with other enterprises that do not engage in child labor.

## Rating

**Dark Green score:**

The enterprise, its business partners subsidiaries, input suppliers or sub-contractors have no employees under the age of 16 regularly employed in a way that interfere with their rights, as specified in the criteria above.

**Red score:**

» Employer hires workers for full-time positions who are under the age of 16; OR

» Enterprise does not verify the practices of business partners, subsidiaries, input suppliers or sub-contractors to make sure that no minors are employed full time or that children are employed even part time in dangerous work; OR

» Employer assigns jobs to minors that are dangerous to them physically, mentally or morally.

## Limitations

The interviewer who verifies the absence of child labour must speak the language of the employees and conduct interviews in conditions of strict confidentiality.

## Sources of information

**FAO and ILO**. 2013. Guidance on addressing child labour in fisheries and aquaculture. Accessed on Sept. 2013.

**International Labour Organization**. 1973. *Convention concerning Minimum Age for Admission to Employment*. No. 138/1973.

**International Labour Organization**. 1999. *Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour*. No. 182/1999. Accessed on Sept. Spet. 2013.

**UN.** *Universal Declaration of Human Rights*. articles 26 and 29. Accessed on Sept. 2013.

INDICATOR NAME

# FREEDOM OF ASSOCIATION AND RIGHT TO BARGAINING (S 3.4.1)

DIMENSION SOCIAL
THEME LABOUR RIGHTS (S 3)
SUB-THEME FREEDOM OF ASSOCIATION AND RIGHT TO BARGAINING (S 3.4)

## Description

Freedom of Association and Right to Bargaining form the necessary conditions for fair trading practices, should these be established and flourishing into the future.

## Relevance to enterprise type and supply chain levels

These rights should be considered inclusive for all employees, whether full or part-time and whether subcontracted or direct hire. This would apply for all types of ownership and production models. These rights should apply to enterprises of all sizes, as well as all types of ownership structures including cooperatives, single-family units, collectives, community-owned land trusts, tribal associations, and plantations. These rights apply to all labour throughout the agricultural supply chain from farms or boats, to processing and distribution, to retail establishments. Sub-contracted employees are not excluded from these universal rights.

## Unit of measurement

This qualitative indicator measures whether any employee in an enterprise is free to negotiate, as individuals or as groups, or through a union or representatives of their choice, the terms of their employment.

## How to measure

- Review of any written or formal contracts or agreements to confirm that said rights and freedoms are made clear.
- In the case of verbal contracts, interviews in their native languages with both employers and their employees to confirm that these rights and freedoms are clearly understood by all parties involved.
- Interviews with employees and their families in their native languages should also confirm that such rights can be initiated at their discretion.

## Rating

**Dark Green score:**
The rights to freedom of association and collective bargaining are fully established and understood by all employees involved and employers provide training in their legal rights for all employees.

**Red score:**
- Employer retaliation against employees for initiating the rights and freedoms, including cancelling of contracts/subcontracts and verbal threats against labour; OR
- Restrictions on transparency and negotiations; OR

» Refusal to allow employees to have representative of their choice present during any negotiations; OR
» Employer makes arbitrary changes to contract without agreement of employees; OR
» Employer pits one employee or group of employees against another; OR
» Failure to allow employees to share proposed contracts or agreements with family members and/or seek and retain legal counsel.

## Limitations

Lack of native language translation and the challenges of illiterate workers pose on-going concerns. Nevertheless, written contracts should be strongly encouraged, as this creates a much more transparent and empowering workplace. The interviewer who verifies employees' freedom of association must speak the employees' language and conduct interviews in strict confidentiality.

## Sources of information

**Deacon, R.T.** Managing Fisheries by Assigning Rights to Harvester Cooperatives. University of California Santa Barbara. *Resources for the Future*. Accessed on Sept. 2013.

**Kassam, L., Subasinghe R. and Phillips M.** 2011. Farmers' associations in aquaculture. *FAO Fisheries and Aquaculture Technical paper* n. 563.

**International Labour Organization**. 1975. *Rural Workers Organisations Convention* No. 141/1975.

**International Labour Organization**. 1948. *Convention concerning Freedom of Association and Protection of the Right to Organise*. No. 87/1948.

**International Labour Organization**. 1949. *Convention concerning the Application of the Principles of the Right to Organize and to Bargain Collectively*. No. 98/1949.

**International Labour Organization**. 1971. *Workers' Representatives Convention* . No. 135/1971.

**International Labour Organization**. 1981. *Collecting Bargaining Convention*. No. 154/1981. Accessed on Sept. 2013.

**International Labour Organization**. 2008. *Declaration on Social Justice for a Fair Globalization.*

INDICATOR NAME **NON DISCRIMINATION (S 4.1.1)**
DIMENSION **SOCIAL**
THEME **EQUITY (S 4)**
SUB-THEME **NON DISCRIMINATION (S 4.1)**

## Description

Sustainable enterprises do not discriminate against any employee, or prospective employee, based on race, creed, colour, national or ethnic origin, gender, age, handicap or disability (including HIV status), union or political activity, immigration status, citizenship status, marital status, or sexual orientation in hiring, job allocation, training, advancement, lay-offs or firing.

## Relevance to enterprise type and supply chain levels

Enterprises of all types and production models, of all sizes from one employee to many, and all types of ownership structures including cooperatives, single-family units, collectives, community-owned land trusts, tribal associations, and plantations avoid discrimination and also require all business partners, subsidiaries and sub-contractors to practice non-discrimination.

## Unit of measurement

This qualitative indicator measures whether the enterprise discriminates against particular groups or by sexual identity in hiring, job allocation, promotions and firing or in awarding contracts to suppliers.

## How to measure

Individuals to be interviewed include employees, management or owners, as well as suppliers and community leaders, if relevant/possible. In areas where diverse communities coexist, the assessor should pay particular attention to the employment history and public opinion of the enterprise's treatment of minority group members. More specifically:

- Interview employees of an enterprise, as well as its subsidiaries or sub-contractors, to find out if they have experienced discrimination in any aspect of the operations including hiring, pay allocation, scheduling, workload or type, discipline, raises and bonuses, benefits, or others. Also, ask if employees have witnessed discrimination taking place against another colleague, particularly if a situation escalated to a termination. If possible, the assessor should follow-up with terminated employees, if allegations of discrimination come up.
- Secondly, interview suppliers, with a particular focus on primary producers, to find-out if they have experienced discrimination of any kind in competing for contracts to supply the enterprise, or in pricing, benefits, or contract terms. Also ask suppliers if they have witnessed discrimination taking place against other suppliers.
- Next, review the enterprise records (such as personnel files, staff listings, pay stubs) for evidence of discrimination, such as clear distinctions among ethnic groups in job placement and advancement or salary differences.

» Check public record by reviewing any records of complaints to public or government agencies that oversee employment, if such exist. In the absence of formal record, interview community or tribal leaders whose members work for the enterprise, or sell to the enterprise, to learn if any history or reputation of discrimination exists.
» Finally, check enterprise documents (such as personnel manual, bylaws, code of conduct or others), to ensure that a policy of non-discrimination is clearly stated and made available to staff and the public.

## Rating

**Dark Green score:**
Enterprises have clear policies of non-discrimination and apply those policies consistently to all employees and in all dealings with suppliers, as specified above.

**Red score:**
» Evidence exists of discrimination in the workplace against employees of any grouping; OR
» Evidence exists of discrimination as a buyer against suppliers of any grouping; OR
» Enterprises pit one ethnic or racial group against another to drive down prices or conditions of work.

## Limitations

The interviewer who verifies the absence of discrimination must speak the language of the employees, and conduct interviews in conditions of strict confidentiality.

## Sources of information

**International Labour Organization**. 1958. *Discrimination (Employment and Occupation) Convention*. No. 111/1958.

**International Labour Organization**. 1975. *Migrant Workers Convention (Supplementary Provisions)*. No. 143/1975. Migrations in Abusive Conditions and the Promotion of Equality of Opportunity and Treatment of Migrant Workers.

**International Labour Organization**. 1981. *Workers with Family Responsibilities Convention* No. 156/1981.

**International Labour Organization**. *ILO Declaration on Social Justice for a Fair Globalization*. Accessed on Sept. 2013.

**UN.** *Universal Declaration of Human Rights* (article 7). Accessed on Sept. 2013.

INDICATOR NAME **GENDER EQUALITY (S 4.2.1)**
DIMENSION **SOCIAL**
THEME **EQUITY (S 4)**
SUB-THEME **GENDER EQUALITY (S 4.2)**

## Description

This indicator intends to ensure that barriers to the employment of women on an equal basis with men are removed, that women receive equal pay for the same or similar work, and have equal opportunities for training and advancement. In addition, there are special protections for women employees before, during, and after pregnancy. Medical benefits are provided for the woman and her child in accordance with national laws and regulations, or in any other manner consistent with national practice. Finally, women are protected in their employment, and are guaranteed the right to return to the same position, or an equivalent position, paid at the same rate at the end of her maternity leave.

## Relevance to enterprise type and supply chain levels

Enterprises of all types and production models, of all sizes from one employee to many, and all types of ownership structures including cooperatives, single-family units, collectives, community-owned land trusts, tribal associations, and corporations remove gender barriers to hiring women and pay them equally for equal work. Also, enterprises require that all business partners, subsidiaries and sub-contractors remove gender barriers and practice non-discrimination towards women.

## Unit of measurement

This qualitative indicator measures whether the enterprise has discriminated against women in hiring, remuneration, training, advancement and access to resources.

## How to measure

Carefully identifying all individuals to be interviewed, including employees, management or owners, as well as suppliers and community leaders if relevant/possible. In areas where diverse communities coexist, the assessor should pay particular attention to the employment history and public opinion of the enterprise's treatment of minority group members.

- Interview female employees of an enterprise, as well as its subsidiaries or sub-contractors, to find-out if women have experienced discrimination in any aspect of the operations including hiring, pay allocation, scheduling, workload or type, discipline, raises and bonuses, benefits, or others. Also, ask if employees have witnessed discrimination taking place against another colleague, particularly if a situation escalated to a termination. If possible, the assessor should follow-up with terminated employees if allegations of discrimination come up.
- In addition, ask female employees if the enterprise has provided adequate resources to support their rights before, during and after pregnancy, including at least:
  - paid maternity leave of 14 weeks or more;
  - ability to return to same or similar position with equal pay after maternity leave;
  - access to medical benefits to cover prenatal, childbirth and postnatal care;

- ability to nurse child during paid work hours;
- ensure that women who are pregnant or breastfeeding are not obliged to perform work which has been determined by the competent authority to be prejudicial to the health of the mother or the child, or where an assessment has established a significant risk to the mother's health or that of her child;
- employers never terminate the employment of a woman during her pregnancy or absence on maternity leave or during a period following her return to work, except on grounds unrelated to the pregnancy or birth of the child and its consequences or nursing. The burden of proving that the reasons for dismissal are unrelated to pregnancy or childbirth and its consequences or nursing rest on the employer.

» Interview suppliers and especially female primary producers to find-out if they have experienced discrimination in competing for contracts to supply the enterprise or in pricing, contract terms and benefits.

» Review enterprise records for evidence of gender barriers and discrimination against women, such as clear distinctions in job placement and advancement or salary differences between men and women in the same or very similar positions.

» Check public record by reviewing any records of complaints to public or government agencies that oversee employment, if such exist. In the absence of formal record, interview community or tribal leaders whose members work for the enterprise or sell to the enterprise to learn if any history or reputation of discrimination exists. Include in particular a review of any court records of suits on behalf of female workers.

» Review enterprise documents such as personnel manual, bylaws, code of conduct or others, to ensure that a policy of non-discrimination is clearly stated and made available to staff and the public. Ensure as well that the resources and benefits provided to pregnant or nursing women as stated above are clearly explained in the personnel manual or contracts of female employees.

## Rating

**Dark Green score:**

The enterprise does not discriminate against women in hiring, remuneration, training, advancement and access to resources, according to the criteria mentioned above.

**Red score:**

» Employers give preference to men in hiring, placement, training, pay and advancement, or any other aspect of the operations; OR

» As buyers, enterprises give preference or pay higher prices to male primary producers in awarding contracts; OR

» Enterprises fail to provide for the safety of pregnant women employees, do not provide paid maternity leave, fire women who take time off to have a baby, or refuse to allow women to return to their previous position or a position with similar wages when they return from maternity leave, and do not allow women to nurse during working hours.

## Limitations

The interviewer who verifies the absence of discrimination against women must speak the language of the employees, and conduct interviews in conditions of strict confidentiality. Familiarity with local customs, mores and attitudes is essential.

## Sources of information

**Dey de Pryck, J.** 2013. *Gender inequalities in fish value chains.* FAO Fisheries and Aquaculture Branch Library.

**International Labour Organization**. 1951. *Equal Remuneration Convention*. No. 100/1951.

**International Labour Organization**. 1981. *Workers with Family Responsibilities Convention*. No. 156/1981.

**International Labour Organization**. 2000. *Maternity Protection Convention*. No. 183/2000.

**UN**. *Universal Declaration of Human Rights* (articles 7, 23 and 25). Accessed on Sept. 2013.

INDICATOR NAME

# SUPPORT TO VULNERABLE PEOPLE (S 4.3.1)

DIMENSION SOCIAL
THEME EQUITY (S 4)
SUB-THEME SUPPORT TO VULNERABLE PEOPLE (S 4.3)

## Description

Support to vulnerable people focuses on enterprises providing support and making accommodations for employees and primary producer suppliers at different life stages and differing levels of ability and disability. Enterprises can perform important services by providing targeted recruitment for minorities, or the socially disadvantaged and language training for people who do not speak the dominant language or have not had the benefit of schooling. In addition, If a worker is injured on the job, they are considered a vulnerable employee, and the employer provides alternative work at a comparable wage to accommodate the disability.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises of all types and production models, of all sizes from one employee to many, and all types of ownership structures including cooperatives, single-family units, collectives, community-owned land trusts, tribal associations, and plantations. Support is to be provided for protecting vulnerable workers, youth, disabled, aged and those who suffer from injuries on the job. As buyers, enterprises should not discriminate against primary producers who are aging, have suffered injuries, or come from minority groups in making agreements, contracts, pricing, benefits or any other capacity. Enterprises also require that all business partners, subsidiaries and sub-contractors support the vulnerable.

## Unit of measurement

This qualitative indicator looks into policies and practices that have effectively accommodated varying levels of ability and disability, young workers and aged ones. It also measures whether the enterprise has provided resources to the local community to support vulnerable people with social and health services, training including languages, and cultural events.

## How to measure

- First, assess whether the enterprise has accommodated vulnerable groups, including those with a disability, young and aged workers, etc, within their operation. To do this:
  - Interview employees of the enterprise, especially those who can be identified as a member of a vulnerable group, and ask if the enterprise:
    - has provided resources, such as physical aids, to allow employees of vulnerable groups to complete their work in a comfortable manner;
    - has implemented protections that benefit employees of vulnerable groups, such as not allowing young employees to handle toxic chemicals, etc.;
    - has taken all steps available to restore an injured or disabled worker to their previous position if possible, or to a similar position of equal pay, and no history of terminating injured or disabled employees exists;

  - » has implemented any programmes, such as language classes or apprenticeships, to support the further career development of employees of vulnerable groups;
  - » does not avoid hiring those members of vulnerable groups who are capable of doing work for the enterprise, and instead seeks to recruit and assist such members of society.
- » Review company policies, documents, and records from recent trainings or programmes to ensure that the enterprise makes a clear effort to develop resources and capacity development opportunities for employees of vulnerable groups.

» Second, assess whether the enterprise has contributed to the support of vulnerable groups in their role as a member of the community. To do this:

- » Discuss events or programmes supported by the enterprise with management or employees. The efforts the enterprise makes to support vulnerable groups in the community at large may range from fundraisers and contributions to non-profits to direct efforts to improve infrastructure or learning opportunities for members of the community.
- » Interview community leaders and employees to ensure that the operations of the enterprise have not led to the degradation of resources or opportunities for members of vulnerable groups. For example, construction has not removed wheel-chair accessible facilities, or pollution has not increased asthma among disadvantaged youth. As part of this review, the assessor should check for complaints to public or government agencies that oversee employment, or civil cases against the enterprise.

## Rating

**Dark Green score:**

The enterprise has accommodated varying levels of ability and disability, young workers and aged ones, and has provided resources to the local community to support vulnerable people with social and health services, training including languages, and cultural events, as described above.

**Red score:**

» Enterprise fires workers who have been injured on the job or fails to provide alternative work that these workers are still capable of performing; OR

» As a buyer, enterprise fails to award contracts to primary producers from minority or disadvantaged groups; OR

» Enterprise assigns vulnerable workers (such as young or very old workers) to tasks that involve using toxic materials or dangerous equipment, or schedules them on night shifts; OR

» Enterprise does not provide jobs for the disabled, but does have the capacity to do so; OR

» Enterprise does not provide work that is appropriate for elderly employees, but does have the capacity to do so; OR

» Employer hires only athletic young men and fails to rehire them if they have suffered injuries or become older and slower.

## Limitations

The definition of a vulnerable group is subjective, and more importantly the needs of vulnerable groups and how best to accommodate them in a workplace may vary geographically. Cultural perceptions of community members with disabilities may vary, and may be taken into consideration by the assessor, but discrimination and neglect should be frowned upon in the move toward sustainability. Small-scale enterprises may have limited positions and thus, less

flexibility in accommodating workers at different life stages. They may not be able to provide employment or apprenticeships specifically for the disabled. However, small-scale producers may still be able to accommodate employees injured on the job, and should be expected to seek ways to contribute to vulnerable groups within their community and protect employees of vulnerable groups (such as young or old workers).

### Sources of information

**International Labour Organization**. 1962. *Social Policy (Basic Aims and Standards) Convention* No. 117/1962.

**International Labour Organization**. 1983. *Vocational Rehabilitation and Employment (Disabled Persons) Convention*. No.159/1983.

**UN.** *Universal Declaration of Human Rights* (articles 7, 22 and 23). Accessed on Sept. 2013.

INDICATOR NAME
DIMENSION
THEME
SUB-THEME

# SAFETY AND HEALTH TRAININGS (S 5.1.1)

SOCIAL
HUMAN SAFETY AND HEALTH (S 5)
WORKPLACE SAFETY AND HEALTH PROVISIONS (S 5.1)

## Description

By providing training in health and safety, enterprises empower employees to understand the possible hazards of the workplace, to have familiarity with the materials and machinery they work with and are exposed to, and to understand the ergonomics of the work so that injuries from repeated motions, lifting or other physical challenges are reduced. Successful trainings ensure a more efficient and positive work environment for all.

## Relevance to enterprise type and supply chain levels

Enterprises of all types and production models, of all sizes from one employee to large factories or corporations, and all types of ownership structures including cooperatives, single-family businesses, collectives, community-owned land trusts, tribal associations, and plantations should provide a safe workplace, health and safety training and health coverage as provided by local law. Enterprises should also require that all business partners, subsidiaries and sub-contractors provide health and safety training for their employees. This indicator is very important to capture fisheries that experience a very high number of casualities.

## Unit of measurement

This qualitative indicator measures whether the enterprise has been providing training in health and safety for employees, and whether these trainings are effective.

## How to measure

- First, assess if adequate health and safety trainings are offered regularly, with required attendance that is paid for by the employer. This can be verified by:
  - Reviewing documentation of the enterprise, including training logs or sign-ins, and other records of past trainings. If the enterprise sends employees to trainings off-site, check with off-site training agency to ensure attendance.
  - Review the operations of the enterprise and ensure that trainings are offered to cover at least basic health and safety for all, as well as specialized safety trainings for employees who encounter or use any dangerous equipment or materials.
  - 100% of employees should have received at least a basic health and safety training from the enterprise that includes informing the employees of:
    - any dangerous areas or zones on the property;
    - any dangerous equipment or materials in use (including inputs such as pesticides/herbicides), and how to avoid exposure;
    - procedures for emergency situations and accidents;
    - procedures for use of safety equipment and protective gear;
    - ergonomics for a healthy work day in each workspace.

- Second, assess if the employees found the training to be effective. This can be verified through interviews with employees, ensuring that:
  - The training was given in a language they were able to understand.
  - They believe that the training was informative and covered what they needed to know, and they were able to ask questions, if necessary.
  - Their time was paid for during the training and attendance was required of all employees.
  - Employees show an understanding of how to follow safety protocols and use safety equipment.
- Finally, assess if these trainings meet national or local regulations by checking with regional health and safety authorities or agencies to learn what the recommended trainings are for the entity's type of operations; the trainings offered by the entity should at least meet these recommendations.

## Rating

**Dark Green score:**
100% of employees have attended at least a basic health and safety training, those working on specialized equipment have also received appropriate trainings, and all above criteria have been met.

**Red score:**
Health and safety trainings are not offered on-site or off-site for employees at least annually, or at least at the recommended level by local authorities or regional agencies.

## Limitations

Some small enterprises that do not use toxic materials or heavy or dangerous machinery may not have in place formal trainings, especially if there are few employees. In this case, there is need to ensure that employees are at least oriented with basic health and safety precautions and procedures when trained. It is still advisable that all entities offer a health and safety training.

## Sources of information

**FAO**. Safety for fishermen.

**FAO/ILO/IMO**. 2011. Safety recommendations for small fishing vessels. *Committee on Fisheries, 29th Session.* [Links to references related to the safety of larger vessels (12m+) are also available in this document].

**IMO.** 1974. *International Convention for the Safety of Life at Sea.* (includes all types of vessels).

**International Labour Organization**. 1962. *Social Policy (Basic Aims and Standards) Convention* No. 117/1962.

**UN.** *Universal Declaration of Human Rights* (articles 22, 23 and 25). Accessed on Sept. 2013.

INDICATOR NAME

# SAFETY OF WORKPLACE, OPERATIONS AND FACILITIES (S 5.1.2)

DIMENSION SOCIAL
THEME HUMAN SAFETY AND HEALTH (S 5)
SUB-THEME WORKPLACE SAFETY AND HEALTH PROVISIONS (S 5.1)

## Description

Employers are responsible for providing a safe and healthy workplace for all personnel and employees. That begins by providing workplace facilities that are clean, adequately ventilated, and that are structurally sound and meet or exceed local building codes. Furthermore, the necessary equipment is provided and is safe. The enterprise monitors the health of employees who are exposed to toxic, radioactive or nano materials, or excessive noise, and sets reasonable limits to exposure. The workplace can include showers for workers who need to wash off dust, toxic materials, extreme temperatures, etc. to which they have been exposed on the job. Enterprises can also encourage and even provide incentives for preventive health measures, healthy eating, exercise, cessation of smoking, and treatment for workers addicted to drugs or alcohol. If an enterprise is large enough to have a cafeteria, the food provided is safe, fresh, locally produced and nutrient rich. Enterprises allow employees to take food for themselves and their families or purchase food at a discount. Enterprises should also require that all business partners, subsidiaries and sub-contractors provide safe and healthy workplaces.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises of all types and production models, of all sizes from one employee to large factories or plantations, and all types of ownership structures including cooperatives, single-family units, collectives, community-owned land trusts, tribal associations, and plantations.

## Unit of measurement

This qualitative indicator measures whether the enterprise has been ensuring a safe, clean and healthy workplace for employees by determining if facilities and structures, equipment, practices, and food offered are safe and meet employee needs for healthy lifestyles.

## How to measure

Unlike the other indicators in this dimension, this indicator is best measured by an on-site inspection. It is recommended that this inspection be self-guided to maintain objectivity. If an on-site inspection is not possible, interviews with a random sampling of employees can serve as a proxy.

- Assess if the enterprise maintains safe facilities and structures by checking that:
  - All buildings and structures, including processing spaces, retail spaces, storage, shelters for equipment, staff facilities and offices, housing provided for employees, and any other structures, meet relevant codes by local law.
  - All buildings and structures used regularly by employees have sufficient ventilation.
  - All buildings and structures have sufficient lighting.

- All buildings and structures are stable and regularly inspected.
- Regulations for human capacity are followed in all buildings and structures.
- Structures and facilities are appropriate for their intended use, and provide adequate shelter from sun and weather for employees during use.

» Assess if the enterprise provides sufficient health and safety facilities for employees, including:
- Sanitation facilities are located in no less than a 10 minutes walking distance from employee' workspace. If field locations are farther, free and accessible transportation is provided to employees to allow them to access sanitary facilities, as needed.
- Shelter from sun and weather is available to employees in all workspaces. If in fields, temporary structures such as tents are available as shelter during breaks or bad weather.

» Assess the enterprise's operations and practices supporting personnel health and safety. This can be accomplished through interviews and observation by ensuring that:
- Use of any dangerous materials, such as sharp implements in processing, or hot or cold equipment, is done so according to a protocol that ensures safety.
- Toxic materials are minimized or eliminated in practice. Those that must be used are used according to a protocol that ensures safety. If toxic materials are used, the enterprise must monitor the health of employees using them regularly, and provide extra health coverage in the event of exposure or injury.
- If provided for employees (i.e. to and from fields or workspaces) transportation means are safe and not overcrowded.
- The enterprise has in place a practice of using signage that is clear to all employees to prevent accidents from entering dangerous zones, for example fields newly sprayed, or rooms with dangerous voltage levels or equipment.
- The enterprise has in place a practice of rotating employees through different positions and workspaces if necessary to prevent repetitive motion injuries. If repetitive motion injuries are a high risk for this enterprise (e.g. a processing facility), the enterprise monitors employee health and makes changes to minimize this.
- Employees report being encouraged to take adequate breaks, take cover from extreme weather, use sanitary facilities as necessary and take care of their health on the job.
- Heavy machinery and dangerous equipment is only used by trained employees.

» Assess the enterprise provision of safe equipment by confirming that:
- Any furniture or equipment used for long periods of time by employees meets their needs ergonomically (e.g. office desks, or stools for processing employees).
- Protective gear and safety equipment (e.g. goggles) are provided free of cost to employees by the enterprise and their use is monitored and required.
- Machinery and large equipment is regularly inspected and maintained to avoid accident.

» If the enterprise is large enough to have a cafeteria or provide food for employees, ensure that the food is fresh and supports a healthy diet.

» Ensure that sub-contractors who work for the enterprise (such as seasonal labor crews through labor contractors) are afforded the same rights of health and safety.

» Assess the accident rate of the enterprise. Accidents may happen even in safe and healthy workspaces. However, a higher than average accident rate for the industry is a red flag. The assessor should ask about accidents, and follow-up with employees involved to ensure that the accident was not the result of neglect of one of the above criteria by the enterprise, and that steps have been taken to prevent further accidents.

» Assess the public record by checking for suits against the enterprise for mistreatment or neglect, or for records of complaints. Also, check for violations filed with local government agencies that handle worker housing and workplace safety.

## Rating

**Dark Green score:**

The enterprise ensures a safe, clean and healthy workplace for employees by determining if facilities and structures, equipment, practices and food offered are safe and meet employee needs for healthy lifestyles.

**Red score:**

» Enterprise fires workers who have been injured on the job, or fail to provide alternative work that these workers are still capable of performing; OR
» Enterprise has a higher rate of accidents than industry average; OR
» Buildings are compromised or unsafe; OR
» Employees do not follow safety protocols, or none exist, for employees when using toxic materials, hazardous materials or inputs; OR
» Sanitation facilities, transportation or housing are filthy and unsafe for employees using them.

## Limitations

This indicator presents a wide range of practices for review by the assessor. Safety and health may be less regulated in developing countries, or in rural areas, placing more burden for inspection on the assessor. The exact circumstances to define safety will change drastically in different industries and contexts. Thus the assessor should recognize the importance of carefully contextualizing this indicator's rating and making a plan for how to measure before beginning.

## Sources of information

**International Labour Organization**. 1962. *Social Policy (Basic Aims and Standards) Convention* no. 117/1962.

**International Labour Organization**. 1983. *Occupational Safety and Health Convention* no. 155/1983.

**International Labour Organization**. 2001. *Convention concerning Safety and Health in Agriculture* no. 184/2001.

**International Labour Organization**. 1969. *Labor Inspection (Agriculture) Convention* no 129/1969.

**UN.** *Universal Declaration of Human Rights* (articles 22, 23 and 25). Accessed on Sept. 2013.

INDICATOR NAME

# HEALTH COVERAGE AND ACCESS TO MEDICAL CARE (S 5.1.3)

DIMENSION SOCIAL
THEME HUMAN HEALTH AND SAFETY (S 5)
SUB-THEME WORKPLACE SAFETY AND HEALTH PROVISIONS (S 5.1)

## Description

Employers play an important role in ensuring the access to medical care of their employees. Larger enterprises often have a clinic with medical personnel available on site, while smaller enterprises may provide access to the medical care of choice for their employees. Either way, enterprises provide health coverage, either in the form of health insurance, workers compensation, or public health services as provided by local law. In addition, enterprises are prepared for medical emergencies. Whether through on-site care or off-site care, enterprises have emergency plans and transportation available in case of an accident to ensure that medical care reaches their employees. Larger enterprises have a clinic with medical personnel available on site, or formal contract with a medical center in the surrounding area of the enterprise.

## Relevance to enterprise type and supply chain levels

This indicator apply to employees at enterprises of all sizes and types (primary production, processing and marketing), as well as all types of ownership structures including cooperatives, single-family businesses, collectives, community-owned land trusts, tribal associations, and corporations. This includes both full and part-time producers or business owners, and is reflective of all business partners involved in the day-to-day management of the operation, as well as all people employed whether full or part time, year round or seasonal.

## Unit of measurement

This qualitative indicator measures whether the enterprise has been providing health coverage and ensuring emergency access to medical care for employees.

## How to measure

- Assess whether the enterprise provides adequate health coverage as per local law. In different geographical contexts, employers may be expected to provide insurance, worker compensation for insurance, or health coverage may be provided publicly. The assessor should contextualize this component accordingly, and ensure that the enterprise meets legal expectations. In areas where legal expectations are not adequate to ensure that all individuals have access to medical coverage, the enterprise may provide on-site services such as a clinic or reimbursement for urgent care.
- Assess whether the enterprise provides for access to medical care in urgent and emergency situations, by ensuring that:
  - Transportation and communication resources are available to employees in all workspaces.
  - Emergency routes or evacuation plans are taught to employees through trainings or drills, and employees are aware of the procedure.
  - Employees confirm that in the case of accidents, the enterprise has previously acted swiftly to ensure medical attention to the injured employee.

## Rating

**Dark Green score:**
The enterprise provides health coverage and ensures emergency access to medical care for all employees according to the criteria mentioned above.

**Red score:**

» Enterprise fails to provide legally required level of health coverage, or fails to provide any form of health coverage.

» Enterprise does not have emergency plan in place to ensure medical care reaches injured or at-risk employees.

» Employees report that accidents were not dealt with quickly, and injured employees suffered increased injury as a result.

## Limitations

Smaller operations may not have the need for drills, or trainings on evacuation. However all operations have the ability to have a plan and ensure access to communication (such as a cell phone) and transportation (such as a farm truck) in the case of an emergency.

## Sources of information

**International Labour Organization**. 1962. *Social Policy (Basic Aims and Standards) Convention* no. 117/1962.

**UN**. *Universal Declaration of Human Rights* (articles 22, 23 and 25). Accessed on Sept. 2013.

INDICATOR NAME **PUBLIC HEALTH (S 5.2.1)**
DIMENSION **SOCIAL**
THEME **HUMAN SAFETY AND HEALTH (S 5)**
SUB-THEME **PUBLIC HEALTH (S 5.2)**

## Description

This indicator refers to enterprises ensuring that operations and business activities do not limit the healthy and safe lifestyles of the local community by polluting or contaminating water, air and soils. Furthermore, a larger-scale enterprise makes positive contributions to community health resources and services by providing financial support, while a family-scale primary producer contributes by selling healthy, clean, locally grown food. Farms of any size can contribute culls and edible excess produce to the local emergency food supply.

## Relevance to enterprise type and supply chain levels

This indicator applies to enterprises of all types and production models, of all sizes from one employee to large factories or plantations, and all types of ownership structures including cooperatives, single-family units, collectives, community-owned land trusts, tribal associations, and plantations. Small-scale enterprises may omit the second part of the indicator referring to the contribution to the food supply and health of the community.

## Unit of measurement

This indicator asks whether the enterprise: takes measures to avoid polluting or contaminating the local community; and contributes to the health of the local community.

## How to measure

- Assess if the enterprise has taken measures to avoid polluting or contaminating the local community. This can be accomplished by:
  - A physical inspection of the facilities and the enterprise' operations can be conducted to verify if any direct impacts resulting from the use of toxic materials, pollutants, or the mishandling of inputs (such as dumping or improper storage) may impact the ecosystem, neighbors, or others who use the same resources.
  - Interview employees and community stakeholders to determine if any operations of the enterprise have resulted in pollution, contamination, or degradation of community health and resources.
  - Review the enterprise's documents such as policy manuals and bylaws to determine if policies are in place to avoid such damage to the community. Particularly, look for policies regarding decision-making in future planning, change, or expansion, and ensure that stakeholder' consultation and minimization of negative impacts are covered.
  - Check the public record for existing court cases against the company related to damage to the community, or complaints to government or public agencies that manage environmental or health issues.

» Assess if the enterprise is taking steps to make a positive contribution to the health of the local community. This can be accomplished by:
  » Discussion with management and employees regarding any programmes, clean-up projects and other in-kind contributions or efforts to support local community health. These may be direct, such as financial support of health improvements in the case of large enterprises, or in the case of smallholder operations, these contributions may be indirect, such as training community members in farming and gardening or selling fresh produce to under-served communities.
  » Review enterprise's documents and policies regarding annual programmes and contributions to local community health.
  » Check the public record for evidence of the enterprise's contributions to area health services, donations to emergency food supplies and programmes to education and inform the local population about healthy living, etc.

## Rating

**Dark Green score:**
The enterprise takes measures to avoid polluting or contaminating the local community and contributes to the health of the local community according to all the conditions mentioned above.

**Red score:**
» The enterprise pollutes water, air and soils with toxic materials; OR
» The enterprise expands without consideration for other area residents and their needs.

## Limitations

Smaller enterprises will not have the resources to provide financial support to local health services, nevertheless they can serve as centers of health in and of themselves and set an example for others to emulate.

## Sources of information

**International Labour Organization**. 1962. *Social Policy (Basic Aims and Standards) Convention* no. 117/1962.

**Jensen, G.L. and Greenlees, K.J.** 1997. Public health issues in aquaculture. *Rev. sci. techn. Off. Int. Epiz.* 16(2): 641-651. Organisation Internationale des Epizooties.

**UN.** *Universal Declaration of Human Rights* (articles 22, 23 and 25). Accessed on Sept. 2013.

**Watterson, A., Little, D., Young, J.A., Murray, F., Doi, L., Boyd, K.A. and Azim, E.** 2012. Scoping a public health impact assessment of aquaculture with particular reference to Tilapiain in the UK. *In ISRN Public Health* Article ID 203796.

INDICATOR NAME **INDIGENOUS KNOWLEDGE (S 6.1.1)**
DIMENSION **SOCIAL**
THEME **CULTURAL DIVERSITY (S 6)**
SUB-THEME **INDIGENOUS KNOWLEDGE (S 6.1)**

## Description

This indicator refers to the recognition and protection of intellectual property rights of indigenous populations. This is inclusive of a broad range of cultural knowledge, such as art, rituals and indigenous customs in general, but more specifically knowledge concerning growing and catching methods, seeds/breeds and their usage, and medicinal plants and their uses. Indigenous communities concerned should be remunerated in a fair and equitable way, based on mutually agreed terms which explicitly provides for continued access and on-going applications of this knowledge for their communities.

## Relevance to enterprise type and supply chain levels

Indigenous knowledge as defined herein is for enterprises of all types and scales, from small-scale producers to large plantations, factories, or multi-national companies with all types of ownership and production models, as well as the assessed enterprise' business partners, subsidiaries and sub-contractors.

## Unit of measurement

This qualitative indicator measures whether enterprises: recognize and respect the universal rights of indigenous communities to protect their knowledge; and if appropriated and acquired, whether enterprises remunerate indigenous communities in a fair and equitable manner, based on mutually agreed terms.

## How to measure

- Assess whether the enterprise is engaged in operations that impact, are connected to, or approximate indigenous knowledge or intellectual property. This may involve mapping local indigenous communities and interviewing community leaders about the local population and traditions. It may be that the enterprise uses intellectual property of an indigenous community that is not geographically near their facilities. The assessor should become familiar with the origins of the methods and operations of the enterprise, and understand if there is a connection with the practices of an indigenous community.
- If a link to an indigenous community is established, proceed by establishing interviews with community leaders in that community, in order to ensure that:
  - For any intellectual property used, there are legally-binding contracts or agreements between the entity and the community.
  - These contracts are established to the satisfaction of the indigenous community, and the community is offered the opportunity to decline permission.
  - These agreements exist in the native language of the indigenous community.

- The enterprise maintains a positive relationship with the indigenous community, and avoids use of their intellectual property in a way that would degrade, misappropriate, plagiarize, or devalue their heritage.
- The community is compensated fairly by the enterprise for any profit earned off of their intellectual property.

» Review the documents and policies of the enterprise in order to ensure that they maintain a policy to collaborate with, and respect, the indigenous communities they benefit from.

» Conduct a review of the public record by searching for court cases filed against the enterprise regarding appropriation of indigenous knowledge without permission or remuneration.

## Rating

**Dark Green score:**
In written policies and in practice, the enterprise meets all national and international laws and treaties concerning indigenous knowledge, and all the criteria above are met.

**Red score:**

» No written documentation of mutually negotiated terms when indigenous knowledge is being exploited by the enterprise; OR

» Contracts do not meet national and international laws and treaties; OR

» Contracts are not available in a language spoken by people involved; OR

» The enterprise has filed for intellectual property rights over said indigenous knowledge, without the permission of the indigenous group involved, or without fair and equitable remuneration.

## Limitations

When there are no written contracts due to illiteracy or language barriers, in-person interviews will be necessary. Interviews with indigenous people must be conducted in a language they understand, and the interviewer must be familiar with local customs and attitudes.

## Sources of information

**Goswami, B., Mondal, S. and Dana, S.S.** 2006. Indigenous technological knowledge in fish Farming. *Indian Journal of Traditional Knowledge*. Vol. 5(1) pp.60-63.

**Johannes, R.E., Freeman, M.M.R., Hamilton, R.J.** 2000. Ignore fishers' knowledge and miss the boat. *in Fish and Fisheries*, vol. 1, Issue 3, pp. 257-271. Blackwell Science Ltd.

**UN**. 2006. *UN Declaration of the Rights of Indigenous Peoples.*

**UNESCO.** Indigenous Knowledge and Sustainability. Accessed on Sept. 2013.

**UNESCO**. 2007. Fishers' knowledge in fisheries science and management. *Coastal Management Sourcebooks 4*. UNESCO Publishing.

INDICATOR NAME **FOOD SOVEREIGNTY (S 6.2.1)**
DIMENSION **SOCIAL**
THEME **CULTURAL DIVERSITY (S6)**
SUB-THEME **FOOD SOVEREIGNTY (S 6.2)**

## Description

Based on a renewal of traditional agrarian and indigenous wisdom, food sovereignty encompasses the need for a more just, local and sustainable food system that affirms the underlying values of democracy, empowerment and self-determination. Food sovereignty results in a just, ecologically harmonious and local, food and agriculture system, which is derived from the right of peoples and communities to define it themselves. Generally, food sovereignty is discussed at a community level and is considered inclusive of all types of ownership and production models in communities of every ethnicity and variety and both rural and urban. This indicator, however, applies to the individual enterprise being assessed and it measures whether the operation has choices between different inputs and raw materials and marketing outlets. Access to choice reflects the independence of the enterprise and the ability of the food chain to have control, or ownership, over their production and supply system, as well as making choices that reinforce this independence from other operations.

## Relevance to enterprise type and supply chain levels

This indicator is relevant to operations of all types and sizes. For primary producers and farms, this indicator refers mostly to availability of inputs, notably seeds and breeds of their choice. For buyers, processors and other secondary businesses in the agricultural chain, this indicator refers mostly to availability of raw materials or other ingredients from suppliers, as well as to marketing outlets.

## Unit of measurement

An enterprise ownership and ability to choose is measured by assessing whether the following criteria apply to all relevant business decisions, including whether:

- the operation sources locally-adapted seed varieties or livestock breeds, or traditional or heirloom varieties, for at least a majority of their production.
- the operation maximizes purchases from local producers specifically using heirloom or traditional varieties instead of importing or buying non-traditional varieties, for at least a majority of their raw material needs.
- the operation avoids changes in production or purchasing that would eliminate seed saving, or the use of heirloom, traditional or locally adapted varieties or breeds in their own production, or that of their suppliers.
- the operation avoids changes in production or purchasing that would limit market access and consumers freedom to choose.

## How to measure

This indicator is measured in four steps, by addressing each of the criteria above individually:

- The first criterion is relevant to primary producers or any operations involved directly in agriculture. It is measured by reviewing the used seed varieties or livestock breeds of the operation, and calculating the percentage of which are traditional, heirloom, or locally adapted seeds and breeds. If the total is greater than 50%, the enterprise meets the first criteria.
- The second criterion is relevant to any operation that purchases inputs, such as ingredients or raw materials, from suppliers. It is measured by reviewing all agricultural product purchases and determining the percentage of which are bought from local producers using heirloom, traditional or locally adapted seeds and breeds. If the total is greater than 50%, the enterprise meets the second criteria.
- The third criterion is relevant to all operations that have already met one or both of the first two criteria.
  - For producers, it is measured by determining if any changes in production, such as choices to grow different crops or compete in different markets, have eliminated their ability to save seeds, or have eliminated their ability (whether because of space, financial decisions or time investment) to continue to grow heirloom, traditional or locally adapted seeds and breeds. If this kind of change has been avoided, the enterprise meets the third criteria.
  - For operations that purchase their inputs from suppliers, it is measured by determining if any changes in their purchasing (such as requests for different ingredients, or specifications on qualities/quantities of produce) have resulted in the elimination of their suppliers' ability to save seeds, or of their suppliers' ability to grow or use heirloom, traditional or locally adapted varieties. If this type of change is avoided, the enterprise meets the third criterion.
- The fourth criterion is measured in two steps:
  - First, by determining if any changes in production or purchasing have resulted in reducing options available to consumers. This can be assessed by considering if changes or practices (such as reducing diversity of production on farm, or buyers placing stipulations on suppliers that encourage monoculture or otherwise, limit diversity of production on farms) impact local markets by reducing the amount of agricultural products grown and sold locally.
  - Secondly, by considering if any practices or changes of the enterprise have resulted in impacts on their fellow producers, or on the producer community of their suppliers, that would limit their access to the market (for example through contamination that prevents access to choice markets, or unfair use of resources that limits options for other producers).

## Rating

**Dark Green score:**

- The enterprise ability to choose its production and supply system meets all relevant criteria defined above.

**Red score:**

- If criterion three is not met, as a result of the operation directly eliminating their own or other operations' seed saving, or traditional variety use; OR
- If the operation is acting as a buyer, and directly limits their ability to choose the traditional varieties or breeds used; OR

» If the operation is acting as a buyer and negotiates a price that undermines their suppliers ability to choose the traditional varieties or breeds used; OR
» If the activities of the operation have contributed to contamination or interference with other producers' ability to save seed, or use traditional varieties.

### Limitations

This indicator examines only one facet of food sovereignty and should not be considered a complete assessment of whether the enterprise is contributing positively or negatively to food sovereignty. For example, it does not directly consider production methods, or the policy context of the operation, which may have significant implications for food sovereignty in that region. Furthermore, care is needed to determine the traditions of the community in which the operation is located, or where its suppliers are located, through interviews with locals (or other direct means), in order to ensure that what is truly a traditional or heirloom variety is correctly weighted, and that impacts on fellow producers are duly considered.

### Sources of information

**Nyeleni**. 2002. Food Sovereignty: a Right for All. *NGO/CSO Forum for Food Sovereignty*. Rome, June 8-13, 2002 . Accessed on Sept. 2013.

**UN.** *Universal Declaration of Human Rights* (articles 17 and 25). Accessed on Sept. 2013.

# APPENDIX
# LIST OF SAFA INDICATOR QUESTIONS

The methodological sheets for the SAFA Indicators seek to assist users assessing their level of fulfilment of the SAFA subthemes objectives. In each case, the proposed default indicator answers a specific question. Thus, SAFA entails responding to the following 118 questions:

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| G 1.1.1 | Mission Explicitness: Is the mission of the enterprise articulated in all enterprise reporting and understood by all employees or members? | | | |
| G 1.1.2 | Mission Drive: Is the enterprise's mission evident in codes and policies, and can the governance body demonstrate the impact of its mission on developing policy and practice? | | | |
| G 1.2.1 | Due Diligence: Does the enterprise have a clear policy for impact assessment, appropriate tools for assessment and is it able to show that these are being used to inform decisions which will have long term impacts on area of sustainability? | | | |
| G 2.1.1 | Holistic Audits: Does the enterprise use an internationally recognized framework for sustainability reporting such as the Global Reporting Initiative, or is social auditing being used by the enterprise? | | | |
| G 2.2.1 | Responsibility: Can the enterprise show, through governance papers or internal dialogue, that performance against mission is regularly evaluated with appropriate stakeholder input? | | | |
| G 2.3.1 | Transparency: Does the enterprise have a policy which requires management to report on how policies, procedures, decisions and decision making processes are made accessible to stakeholders? | | | |
| G 3.1.1 | Stakeholder Identification: Can the enterprise identify all material stakeholders and describe the process by which they were identified? | | | |
| G 3.1.2 | Stakeholder Engagement: Does the enterprise use appropriate mechanisms to engage with each group of stakeholders? | | | |
| G 3.1.3 | Engagement Barriers: Is the enterprise aware of, and addresses barriers to participation of less powerful stakeholders? | | | |
| G 3.1.4 | Effective Participation: Can the enterprise describe actual stakeholder participation (including of "least-powerful" stakeholders), its impact on their decision making and how this impact was communicated to stakeholders? | | | |
| G 3.2.1 | Grievance Procedures: Can the enterprise describe grievance procedures for each stakeholder group, how they are publicized (especially with "least powerful" stakeholders) and their current usage? | | | |
| G 3.3.1 | Conflict Resolution: Can the enterprise identify potential conflicts of interest with and among various stakeholder groups, and provide examples of resolution through collaborative dialogue, based on respect, mutual understanding and equal power? | | | |



| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| G 4.1.1 | Legitimacy: Does the enterprise's policy, or producers' code of practices, explicitly demand that all applicable laws and regulations, voluntary standards, adopted or existing, be reported to the governance body, members or employees, and regularly reviewed for compliance and congruence with mission? | | | |
| G 4.2.1 | Remedy, Restoration and Prevention: Can the enterprise show evidence of a prompt and responsible response to legal, regulatory, international human rights and voluntary code breaches, including detailed response on how the breach was remedied, how the effects of the breach will be restored or compensated and the policies and processes instituted to prevent further breaches? | | | |
| G 4.3.1 | Civic Responsibility: Within its sphere of influence, does the enterprise proactively and transparently support the improvement of the legal and regulatory framework on all four dimensions of sustainability, and does it not seek to avoid the impact of human rights or sustainability standards or regulation through the corporate veil, relocation, or any other means? | | | |
| G 4.4.1 | Free, Prior and Informed Consent: Is the enterprise aware of stakeholders' pre-existing access to land, water and resources, has it mapped this to the satisfaction of all affected stakeholders and agreed to take no action to reduce this access until it has fully informed stakeholders, negotiated on equal terms and provided for mutually agreeable compensation, sufficient to allow sustainable livelihoods? | | | |
| G 4.4.2 | Tenure Rights: Is the enterprise aware of stakeholders' pre-existing tenure and access to land, water and resources, and can the enterprise prove that it has fully and promptly co-operated with any inquiry and remedy process to the satisfaction of affected parties in case of any (alleged) breach of tender rights. | | | |
| G 5.1.1 | Sustainability Management Plan: Does the enterprise have a sustainability plan, endorsed by its governing body (or producers' association members or contractors), which provides a holistic view of the enterprise's sustainability and covers each of the environmental, economic, social and governance dimensions, including references to mission and demonstration of progress against the plan, or how the plan has driven specific decisions and their outcomes? | | | |
| G 5.2.1 | Full-Cost Accounting: Is the business success of the enterprise measured and reported to stakeholders taking into account direct and indirect impacts on the economy, society and physical environment? | | | |
| E 1.1.1 | GHG Reduction Target: Has the enterprise set a target in reducing GHG emissions? | | | |
| E 1.1.2 | GHG Mitigation Practices: Which activities and practices has the enterprise implemented that have effectively reduced GHG emissions? | | | |
| E 1.1.3 | GHG Balance: What is the net direct GHG emission (i.e. annual emissions minus sequestration) of the enterprise? | | | |
| E 1.2.1 | Air Pollution Reduction Target: Has the enterprise set a target in reducing the emission of air pollutants? | | | |
| E 1.2.2 | Air Pollution Prevention Practices: Which activities and practices has the enterprise implemented that have effectively reduced air pollutants? | | | |
| E 1.2.3 | Ambient Condentration of Air Pollutants: What is the percentage of days of the year when standard air pollution values have been exceeded in the surroundings of the enterprise? | | | |
| E 2.1.1 | Water Conservation Target: Has the enterprise set a target for reducing water consumption or water withdrawals? | | | |

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| E 2.1.2 | Water Conservation Practices: Which activities and practices has the enterprise implemented that have effectively increased the efficiency, or reduced the amount of, the freshwater used in the operation? | | | |
| E 2.1.3 | Ground and Surface Water Withdrawals: What is the share of annual withdrawals of ground and surface water as a percentage of total renewable water? | | | |
| E 2.2.1 | Clean Water Target: Has the enterprise set a target for improving the quality of the water affected by the operations? | | | |
| E 2.2.2 | Water Pollution Prevention Practice: Which activities and practices have been implemented that have effectively reduced or prevented the release of water pollutants? | | | |
| E 2.2.3 | Concentration of Water Pollutants: What is the percentage of days of the year when standard water pollution values have been exceeded in water (groundwater, surface water, coastal and marine water) as a result of the enterprise's operations? | | | |
| E 2.2.4 | Wastewater quality: What is the share of wastewater with a good water quality (concentrations of faecal coliforms, heavy metals, BOD and COD below critical levels) as a percentage of the total wastewater from the enterprise's operations? | | | |
| E 3.1.1 | Soil Improvement practices: What activities and practices have been implemented that have effectively increased the quality and fertility of soils? | | | |
| E 3.1.2 | Soil Physical Structure: On what share of the utilized land are the conditions of soil physical structure good in consideration of the local climate and bedrock? | | | |
| E 3.1.3 | Soil Chemical Quality: On what share of the utilized land is the chemical quality (e.g. synthetic compounds, pesticides) of soil high in consideration of the local climate and bedrock? | | | |
| E 3.1.4 | Soil Biological Quality: On what share of the utilized land is the biological quality of soil high in consideration of the local climate and bedrock? | | | |
| E 3.1.5 | Soil Organic Matter: On what share of the utilized land are content and quality of soil organic matter high in consideration of the local climate and bedrock? | | | |
| E 3.2.1 | Land Conservation and Rehabilitation Plan: Does the enterprise have a plan which describes the steps of conserving or enhancing soil health and rehabilitating degraded soils? | | | |
| E 3.2.2 | Land Conservation and Rehabilitation Practices: Which effective soil conservation techniques and/or rehabilitation measures have been implemented and/or regularly practiced in the operation? | | | |
| E 3.2.3 | Net Loss/Gain of Productive Land: What is the ratio between rehabilitated land and degraded land in the enterprise's operations? | | | |
| E 4.1.1 | Landscape/Marine Habitat Conservation Plan: Does the enterprise have a plan that describes how to conserve or rehabilitate a diversity of habitats within its sphere of influence? | | | |
| E 4.1.2 | Ecosystem Enhancing Practices: What activities and practices have been implemented that have effectively enhanced the functioning of ecosystem services, as well as the connectivity of ecosystems? | | | |
| E 4.1.3 | Structural Diversity of Ecosystems: On what share of utilized area does the enterprise have a high structural diversity of habitats? | | | |

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| E 4.1.4 | Ecosystem Connectivity: What share of the natural and semi-natural ecosystems in the operation are connected with similar ecosystems (within and adjacent to the operation's borders) in a way that allows an exchange between populations of key species? | | | |
| E 4.1.5 | Land Use and Land Cove Change: Were any primary habitats (e.g. wetlands, primary forests, grasslands, protected waterways) converted during the last 20 years by the enterprise's operations, including areas where its inputs are sourced? | | | |
| E 4.2.1 | Species Conservation Target: Has the enterprise set a target for the conservation and rehabilitation of the populations of rare and endemic species in its sphere of influence? | | | |
| E 4.2.2 | Species Conservation practices: What activities and practices has the enterprise implemented to protect , maintain and/or rehabilitate the integrity of populations of wild plants and animals in its sphere of influence? | | | |
| E 4.2.3 | Diversity and Abundance of Key Species: Have the diversity and abundance of threatened or vulnerable wild species on the one hand, and invasive species on the other, increased in the operation? If so, by what share? | | | |
| E 4.2.4 | Diversity of Production: On what share of the utilized area does the enterprise have a diverse crop rotation and/or use several species at the same time? | | | |
| E 4.3.1 | Wild Genetic Diversity Enhancing Practices: What activities and practices has the enterprise implemented that have effectively helped to conserve or rehabilitate the genetic diversity of wild species in its operation? | | | |
| E 4.3.2 | Agro-biodiversity in-situ Conservation: For each species, what is the share of production from others than the most common genetic lineage/breed? | | | |
| E 4.3.3 | Locally Adapted Varieties/Breeds: What is the share of production accounted for by locally adapted varieties/breeds and by rare and traditional (heirloom) varieties and breeds? | | | |
| E 4.3.4 | Genetic Diversity in Wild Species: How big is the share of the enterprise's operations that shows a high genetic diversity in non-utilized plants, animals and microorganisms? | | | |
| E 4.3.5 | Saving of Seeds and Breeds: Does the enterprise's operation save seeds, or engages with breeding work to conserve traditional and/or rare breeds on farm? | | | |
| E 5.1.1 | Material Consumption Practices: What practices and activities has the enterprise implemented that effectively replaced virgin non-renewable materials by recycled/reused/renewable ones in the operation and replaced synthetic inputs with natural inputs? | | | |
| E 5.1.2 | Nutrient Balances: What is the nutrient balance of the operations (supply vs demand, or imports vs exports at farm or parcel level) for nitrogen and phosphorus? | | | |
| E 5.1.3 | Renewable and Recycled Materials: What share of the enterprise's total material use is generated from off-operation virgin sources? | | | |
| E 5.1.4 | Intensity of Material Use: How has the quantity of materials used per unit produce in the operations changed during the last 5 years? | | | |
| E 5.2.1 | Renewable Energy Use Target: Has the enterprise set a target for the share of renewable and sustainable energies in its total direct energy use? | | | |

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| E 5.2.2 | Energy Saving Practices: What practices and activities has the enterprise implemented that effectively reduced the energy requirements in its operation? | | | |
| E 5.2.3 | Energy Consumption: How has the total direct energy consumption changed during the last 5 years? | | | |
| E 5.2.4 | Renewable Energy: What share of total direct energy use is generated from sustainable renewable sources? | | | |
| E 5.3.1 | Waste Reduction Target: Has the enterprise set a target in reducing the generation of waste, as well as the hazardousness of this waste, in or by its operations? | | | |
| E 5.3.2 | Waste Reduction Practices: What practices and activities have been implemented that effectively reduced waste generation in the enterprise's operation? | | | |
| E 5.3.3 | Waste Disposal: How much solid waste does the enterprise generate that is not segregated, stored and treated such that it is rendered non-hazardous to humans and environment at the point of release from the enterprise? | | | |
| E 5.3.4 | Food Loss and Waste Reduction: What is the share of food that is lost or wasted in the enterprise's operations and what share is reused (charities, feed), recycled or recovered (compost, bioenergy)? | | | |
| E 6.1.1 | Animal Health Practices: What activities and practices has the enterprise implemented that effectively promoted the health of animals, while reducing the use of veterinary drugs and preventing animal losses due to disease and injuries? | | | |
| E 6.1.2 | Animal Health: What share of the enterprise's animals are healthy and have not required any treatment with veterinary drugs against illness or disease? | | | |
| E 6.2.1 | Humane Animal Handling Practices: Which practices and activities has the enterprise implemented that effectively reduced the suffering and risk of injury of animals during all phases of their life, including transport and killing? | | | |
| E 6.2.2 | Appropriate Animal Husbandry: What share of the enterprise's animals have the possibility to behave according to their specific needs? | | | |
| E 6.2.3 | Freedom from Stress: What share of the enterprise's animals have sufficient freedom to move around, live free of pain, discomfort and distress all the time, during all phases of their life, including during transport and killing? | | | |
| C 1.1.1 | Internal Investment: In which activities and practices has the enterprise invested during the last 5 years to improve and monitor its social, economic, environmental and governance performance? | | | |
| C 1.2.1 | Community Investment: How has the enterprise's investments contributed to address and meet community needs, with an efficient use of resources and maintaining an environmental balance? | | | |
| C 1.3.1 | Long Term Profitability: Do the enterprise' investments aim to establish and reinforce the conditions to maintain, generate and increase the enterprise profits in the long-term? | | | |
| C 1.3.2 | Business Plan: Does the enterprise have a business plan or an up-to-date document articulating revenue streams, growth plan, and a operational action plan that projects the generation of financial resources for the future? | | | |
| C 1.4.1 | Net Income: Does the earned revenue that the enterprise retains exceed the total expenses, including interests and taxes associated with producing the goods sold, during the last five years? | | | |

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| C 1.4.2 | Cost of Production: Has the enterprise completed a process to determine the total cost of the product sold and per unit of production to calculate your break-even point? | | | |
| C 1.4.3 | Price Determination: Has the enterprise considered a break-even point to negotiate with their buyer'(s) selling price in all contracts? | | | |
| C 2.1.1 | Guarantee od Production Levels: What are the actions and mechanisms that the enterprise has put in place to reduce the negative impact of the risks that could affect meeting the target volume of production and quality standards? | | | |
| C 2.1.2 | Product Diversification: Does the enterprise produce more than one product, specie or variety of plant or animal for income generation? | | | |
| C 2.2.1 | Procurement Channels: Which actions and mechanisms has the enterprise put in place to reduce the risk of having input supply shortages, including maintaining ongoing business relationships with suppliers? | | | |
| C 2.2.2 | Stability of Supplier Relationship: What share of supplier contracts/ business relationship has remained on-going over the last 5 years? | | | |
| C 2.2.3 | Dependence on the Leading Supplier: What share of inputs comes from the leading supplier? | | | |
| C 2.3.1 | Stability of Market: Which actions and mechanisms has the enterprise put in place to ensure a diversified and consolidated income structure from product sales or from the services provided? | | | |
| C 2.4.1 | Net Cash Flow: Has the enterprise generated a positive net cash flow in the last five years? | | | |
| C 2.4.2 | Safety Nets: Does the enterprise have access to formal or informal financial sources to withstand liquidity crises? | | | |
| C 2.5.1 | Risk Management: Does the enterprise have a plan to reduce and adapt itself against risks that could potentially threaten the business? | | | |
| C 3.1.1 | Control Measures: Does the enterprise have food hazards and safety control measures in place that comply with correspondent and applicable regulations? | | | |
| C 3.1.2 | Hazardous Pesticides: Have any of the employees handle, store or use any highly hazardous pesticides during the last five years? | | | |
| C 3.1.3 | Food Contamination: Were there any documented incidents where pesticide residues in ingredients or products have exceeded the maximum allowed limits during the last 5 years, or were there any other documented incidents of chemical or biological food contamination (e.g. due to the use of heavy metals, unapproved GMOs, mycotoxins, etc) during the last five years? | | | |
| C 3.2.1 | Food Quality: What share of the total volume of production complies with the required quality norms and standards? | | | |
| C 3.3.1 | Product Labelling: Are applicable product labeling codes fully complied with, and can the enterprise show evidence of exceeding these standards wherever possible? | | | |
| C 3.3.2 | Traceability Systems: Does the system ensure traceability over all stages of the food chain so that products can be easily and correctly identified and recalled? | | | |
| C 3.3.3 | Certified Production: Can the enterprise identify all ingredients and inputs used by it in its enterprise and can it provide evidence of certified sustainable sourcing of these? | | | |

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| C 4.1.1 | Regional Workforce: Has the enterprise hired during the last five years regional employees when similar skills, profile and conditions are offered to other candidates? | | | |
| C 4.1.2 | Fiscal Commitment: Does the enterprise pay the applicable taxes as indicated by local regulations? | | | |
| C 4.2.1 | Local Procurement: Has the enterprise procured from local suppliers when equal or similar conditions apply in comparison to non-local suppliers? | | | |
| S 1.1.1 | Right to Quality of Life: Do all primary producers, smallholders and employees in enterprises of all scales have time for family, rest and culture, and the ability to care for their needs such as maintaining adequate diets? | | | |
| S 1.1.2 | Wage Level: Do all primary producers who supply enterprises and all employees earn at least a living wage? | | | |
| S 1.2.1 | Capacity Development: Do primary producers and employees have opportunities to increase skills and knowledge, to advance within the enterprise in which they work or to build the future of their own enterprise? | | | |
| S 1.3.1 | Fair Access to Means of Production: Do primary producers, including indigenous people, have access to the equipment, capital and knowledge or training necessary to make a decent livelihood feasible? | | | |
| S 2.1.1 | Fair Pricing and Transparent Contracts: Do buyers through their policies and practices recognize and support suppliers' (particularly primary producers) rights to fair pricing and fair contracts and agreements? | | | |
| S 2.2.1 | Rights of Suppliers: Do buyers explicitly recognize and support suppliers' (particularly primary producers) rights to freedom of association and to collective bargaining? | | | |
| S 3.1.1 | Employment Relations: Does the enterprise or employees' subcontractors have written agreements with their employees that at least meet national and international labor treaties including social security, or, for enterprises that are primary producers at least a clear understanding based on verbal agreement between employer and employees? | | | |
| S 3.2.1 | Forced Labour: Does the enterprise or employees' subcontractors employ people who are not free to quit or who cannot raise grievances without fear of retaliation? | | | |
| S 3.3.1 | Child Labour: Does the enterprise or its subsidiaries or sub-contractors employ minor children, 16 years of age or younger, who are working full time or more, engaged in jobs that are dangerous to them physically, mentally or morally, and who are deprived of the opportunity to live as children, to attend school and/or other appropriate training? | | | |
| S 3.4.1 | Freedom of Association and Right to Bargaining: Are the employees in an enterprise free to negotiate as individuals or as groups or through a union or representatives of their choosing to set the terms of their employment? | | | |
| S 4.1.1 | Non Discrimination: Does the enterprise discriminate against any employee or prospective employee based on race, creed, colour, national or ethnic origin, gender, age, handicap or disability (including HIV status), union or political activity, immigration status, citizenship status, marital status, or sexual orientation in hiring, job allocation, promotions and firing or in awarding contracts to primary producers for supplies? | | | |
| S 4.2.1 | Gender Equality: Does the enterprise discriminate against women in hiring, remuneration, training, and advancement, access to resources or firing? | | | |

| No. | Question | YES | NO | Need to be quantified |
|---|---|---|---|---|
| **S 4.3.1** | Support to Vulnerable People: Does the enterprise accommodate varying levels of ability and disability, young workers and aged ones and provide resources to the community to support vulnerable people with social and health services, training, and cultural events for women, minorities and the disadvantaged? | | | |
| **S 5.1.1** | Safety and Health Training: Does the enterprise provide training in health and safety for 100% of employees, that are understandable by employees, tailored to their workspace, and effective? | | | |
| **S 5.1.2** | Safety of Workplace, Operations and Facilities: Does the enterprise maintain a safe, clean and healthy workplace including all grounds and facilities, and all practices? | | | |
| **S 5.1.3** | Health Coverage and Access to Medical Care: Does the enterprise provide adequate health coverage per legal requirements, and ensure timely access to medical care in emergencies for employees? | | | |
| **S 5.2.1** | Public Health: Does the enterprise take measures to avoid polluting or contaminating the local community and contribute to the health of the local community? | | | |
| **S 6.1.1** | Indigenous Knowledge: Does the enterprise recognize and respect the universal rights of indigenous communities to protect their knowledge? If appropriated and acquired, has the enterprise remunerated indigenous communities in a fair and equitable manner, based on mutually agreed upon terms? | | | |
| **S 6.2.1** | Food Sovereignty: Does the enterprise contribute to the food sovereignty of their region by exercising their ability to preserve and use traditional, heirloom and locally adapted varieties or breeds, as well as supporting others in pursuing this goal? | | | |



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SAFA

SUSTAINABILITY ASSESSMENT OF
FOOD AND AGRICULTURE SYSTEMS

# SAFA INDICATORS

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