
Closing the Gaps in GAPS:

A Preliminary Appraisal of the Measures and Costs Associated with Adopting Commonly Recognized “Good Agricultural Practices” in Three Coffee Growing Regions

Appendices

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Sustainable
Coffee
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Appendix 1: Benchmarking Analysis of Different Standards

The following charts compares the criteria from the different standards covered by this report as of September, 2006. It forms the basis for the identification of the “Core Criteria” used in this study.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index

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Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p><i>1. Freedom of Association and Collective Bargaining</i></p> <p>Core elements:</p> <ul style="list-style-type: none"> - Right to organize and to collectively negotiate working conditions. - No discrimination against members of unions or other worker organizations. 	<p>Core elements are included</p> <p>* Organization means trade unions for workers + for farmer cooperatives, associations...</p> <p>Differentiation of workers and producers will be addressed by the indicators in respect to ILO Conventions. Make clear, that for workers this includes the right to found and to be represented by unions ("real unions"). Address indigenous organizations.</p> <p>Reference to ILO Convention 87 and 98</p>	<p>Core elements are included.</p> <p>Evidence that the employer supports freedom of association is a major must.</p> <p>The right to perform collective bargaining is required.</p>	<p>Core elements are included.</p> <p>Freedom of association and the right to collective bargaining shall be respected</p>	<p>Evidence must exist that the producers has facilitated or allowed right to organize.</p> <p>Procedures must be in place so that the working population is aware that they can complain to SAN Members.</p> <p>Producer must consult and inform workers about all technical or organizational changes.</p> <p>Reference to ILO Convention 87 and 98</p>	<p>Partially included. Collective bargaining is not mentioned explicitly.</p> <p>Reference to "core ILO standards".</p> <p>For small producers active participation in farmer associations is demanded.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<i>Indicators</i>	<p>Green criteria: Resources, information and institutional structures are available to improve representation of workers and farmers by their organization. Collective bargaining results are applied to all workers</p> <p>Yellow criteria: right to found, belong and to be represented by an independent organization of free choice is accepted and easy access to it exists. Trade Unions are bargaining collectively</p>	<p>12.F.7 (major): The employment conditions are in accordance with all the national and local legislation and ILO conventions 87 (Freedom of Association and Protection of the Right to Organize Convention)</p> <p>and ILO C98 (Right to Organize and Collective Bargaining). All employees are free to establish and to join, organizations of their own choice. There is evidence that the employer supports the establishment and/or there is no evidence that the employer blocks effective functioning of worker committees.</p>	<p>(3.7)</p> <ul style="list-style-type: none"> - Employees and workers have the right to form and join organizations or associations of their own choice without previous authorization. - Employees and workers have the right to collective bargaining. - A labor organization has the right to conduct their activities if employees and workers wish so. 	<p>3.3.1 The company or producer must guarantee workers' rights to organize and voluntarily negotiate their working conditions.</p> <p>3.3.2 The company or producer must guarantee that it does not exercise pressure or coercion, threaten or intimidate workers interested in belonging to a union, association or any other type of labour organization.</p>	<p>There are no specific indicators for big farms.</p> <p>NKG indicators for small holders specifies that:</p> <p>9.1 The farm is member of a producer organization and actively participates in the activities of the organization.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>2. No Discrimination</p> <p>Core elements:</p> <p>- Related to sex, religion, nationality, political affiliation, ethic group, trade unions.</p>	<p>Core elements included.</p> <p>Requires positive action against discrimination. Absence of discrimination is there fore not sufficient.</p> <p>Reference is made to ILO Convention 111</p>	<p>Core elements included.</p> <p>Employment conditions must be in accordance with all the national and local legislation and ILO convention 111.</p>	<p>Core elements are included.</p>	<p>Core elements included.</p> <p>Evidence must exist that the producer does not tend to hire or fire for discriminatory reasons.</p> <p>Reference to ILO Conventions 100 and 111</p>	<p>Core elements included in standards and index.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Positive action programmes to secure equal rights are in place all along the chain.</p> <p>Yellow criteria: Awareness to secure equal rights is raised and first steps to develop positive action programmes are taken.</p>	<p>12.F.3 (major) The responsible person aware of the relevant national and local regulation on worker welfare issues can demonstrate awareness</p> <p>and on-site access to current relevant national and local regulations regarding:</p> <ul style="list-style-type: none"> - gross wages - workers age - working hours - union membership - anti-discrimination - forced labor - contract and wages - leave - maternity leave and medical care - pension/gratuity 	<p>(3.1) - A safe working environment free of any type of discrimination shall be promoted.</p> <p>Discrimination should be strictly prevented on the basis of ethnic groups, national origin, religion, disability, gender, sexual orientation, worker organizations or political affiliation with regard to contracts, compensation, training, promotion, dismissal or retirement of its personnel.</p> <p>(3.7) - Workers representatives must not be discriminated.</p>	<p>3.2.1 No discrimination based on race, color or sex, religion, social origin, political position, nationality, affiliation with unions or other legal groups, sexual orientation or marital status is permitted in hiring and selecting workers.</p>	<p>10.5 and 8.5: no form of discrimination is tolerated by the farm management</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
3. No Trafficking of persons	Mentioned as one the unacceptable practices within the Code. (there are no specific indicators).	Not included.	Not included.	Not included. The standards mention the prohibition of animal trafficking.	Not included.
4. No Child labour Core elements: - Right to education - Protection from risky activities.	Core elements included No difference between family farms and larger farms. Requires active efforts from producers in order to encourage education of children. Absence of child labor is not sufficient. (ref. ILO Convention 182)	Core elements included Requires evidence of awareness raising of farm management and on site living parents if children do not go to primary school.	Core elements included Monitoring of the situation of each child on the farm is required. Positive action to improve situation of children is required. Children are allowed to accompany their parents in the harvest period.	Core elements included Includes detailed additional requirements for young workers between 15 and 18. (Ref to national legislation and ILO Convention 138-recommendation 146 related to minimum age)	Core elements included Monitoring of the situation of each child and individual measures to improve the situation required. Children are allowed to accompany their parents in the harvest period

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Children have the right to childhood and education.</p> <p>Yellow criteria: Deliberate efforts to take off children from work and get them into education are visible.</p>	<p>12.F.8 (major): The minimum workers age complies with all local and national legislation as well as with ILO convention 138 (Minimum Age Convention). Employment conditions respect ILO convention 182 (Worst Forms of Child Labour Convention). Children within the age of compulsory schooling must not be employed during school hours.</p> <p>Young workers (12-18) must not undertake hazardous work that jeopardizes their health, safety or morals.</p>	<p>(3.4) - Children under the work minimum age referred by national laws can't be recruited as permanent workers or day laborers.</p> <ul style="list-style-type: none"> - For cultural and socio-economic reasons, children under the work minimum age can accompany their parents during the coffee-harvesting period. It shall be ensured that they are not forced to work, do not work long hours and are not exposed to hazardous or heavy work. - The problem of child labor should be taken care of and the individual situation of each child permanently living on the farm should be monitored. All measures taken shall be designed to actually improve the living conditions of the individual child. 	<p>3.2.4 The company or producer may not hire minors, as established by each country's law for agricultural activities. Young workers (15-18) must not undertake hazardous work and the employer must keep a registry with personal and labour information.</p> <p>3.2.4 A It is forbidden to contract minors under 14 years old.</p>	<p>6.1 No exploitative child labor.</p> <p>6.2 Children have access to education</p> <p>NKG indicators for small holders specifies that:</p> <p>5.1 No child labor except as part of family work and if access to education is facilitated.</p> <p>5.2 Access to education is facilitated. If no schools are available, the producer organization aims to improve educational situation.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>5. No forced labor</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Forced labor is prohibited within the farms 	<p>Reference is made to ILO Conventions 29 and 105</p>	<p>Compliance with ILO Conventions 29 and 105 required.</p> <p>In addition, workers should not be required to lodge deposits or their identity papers with their employer and must be free to leave their employer after reasonable notice.</p>	<p>Not directly mentioned but set as: "Labor conditions should respect the Universal Declaration of Human Rights and the fundamental principles of OIT".</p>	<p>Evidence should exist that the ILO Conventions 29 and 105 are respected.</p>	<p>Not included</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	There are no specific indicators.	<p>12.F.6 (major): The employer acts in accordance with local and national legislation and</p> <p>ILO Conventions 29 (Forced Labour Convention) and</p> <p>ILO 105 (Abolition of Forced Labour Convention).</p> <p>There must be no use of forced, bonded or involuntary labor. Workers must not be required to lodge deposits or their identity papers with their employer and must be free to leave their employer after reasonable notice.</p>	There are no specific indicators.	3.2.5 Any type of forced labor is prohibited. The company or producer has to document and demonstrate compliance with the ILO Conventions.	

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>6. Written Contracts</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Workers receive written and legally registered labor contracts 	<p>Included</p> <p>Written contracts are required as green criteria. Informal contracts are allowed as yellow criteria but exact requirements are not specified.</p>	<p>Included, demanding that the responsible person can demonstrate awareness and on-site access to current relevant national and local regulations regarding contract and wages.</p>	<p>Included. To every extent possible work performed must be on the basis of recognized employment relationship established through National law and practice.</p>	<p>Included. Hiring should be done directly by the farmer, unless the subcontractor can demonstrate the required social and environmental behavior at the farm.</p>	<p>Not a specific requirement</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: All workers receive written and legally registered labour contract.</p> <p>Yellow criteria: Informal but transparent terms of contract are used.</p>	<p>12.F.3 (major): The responsible person aware of the relevant national and local regulation on worker welfare issues can demonstrate awareness</p> <p>and on-site access to current relevant national and local regulations regarding:</p> <ul style="list-style-type: none"> - gross wages - workers age - working hours - union membership - anti-discrimination - forced labor - contract and wages - leave - maternity leave and medical care - pension/gratuity 	<ul style="list-style-type: none"> - Regular employment relationships should be established as far as possible. - Working contracts or other appropriate working relationships that are in accordance with national law should be established. 	<p>3.2.1.H Contracts for each worker must include free time within the ordinary working day, number of paid vacation days and holidays. Each worker should have at least a none working day per week.</p>	

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<p>7. Working Hours</p> <p>Core elements:</p> <p>- Based on national and international law</p>	<p>Included</p> <p>Overtime working should be remunerated</p>	<p>Included.</p> <p>Workers should not work more than 48 hours as the basic working week - outside peak harvest period.</p> <p>Reference is made to national and local legislation as well as to ILO convention 1.</p>	<p>Included</p> <p>Overtime working is remunerated and only done during the harvest peak.</p>	<p>Included.</p> <p>The farm should have a social policy that includes the rights and duties of the employees.</p>	<p>Included for larger farms but not for smallholders</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Overtime working hours are fully remunerated and only practiced during harvest.</p> <p>Yellow criteria: Transparent working hour timetables exist and working hours are recorded effectively and individually.</p>	<p>12.F.3 (major): The responsible person aware of the relevant national and local regulation on worker welfare issues can demonstrate awareness</p> <p>and on-site access to current relevant national and</p> <p>local regulations regarding:</p> <ul style="list-style-type: none"> - gross wages - workers age - working hours - union membership - anti-discrimination - forced labor - contract and wages - leave - maternity leave and medical care - pension/gratuity 	<p>(3.2)</p> <p>Daily working hours for registered employees do not exceed the maximum number of hours set by national regulations.</p>	<p>3.2.1 F,G The Certification Program allows a maximum of 48 working hours per week. The system used for extra working hours must be documented. Working extra hours should be voluntary, it should be paid in a higher rate than the normal salary and it can't exceed 12 hours per day.</p>	<p>8.3 Working hours are in line with national and international regulations.</p>

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<p>8. Occupational Health and Safety Conditions</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Avoid unhealthy working practices - Access to medical services - Access to potable water - Training in health and safety issues 	Included	<p>Included.</p> <p>Compliance with existing, current and relevant national and local regulations on worker health, safety and welfare issues need to be ensured.</p>	Included	Included	Included.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green Criteria: A monitoring system to assure proper health and safety conditions to workers exists.</p> <p>Yellow criteria: Procedures and equipment to avoid unhealthy and unsafe working practices exist.</p>	<p>12.A.1 (minor)</p> <p>Risks for safe and healthy working conditions have been assessed based on national, regional and local legislation and sector-wide agreements (Preferably by independent qualified organizations). Risk assessment also to be done on historical data of accidents and health problems in the area.</p> <p>12.A.2 (minor): There is a documented action plan that refers to the actions been taken to promote safe and healthy working conditions with a responsible person.</p> <p>12.F.2 (Recom): Records show that the concerns of the workers about health, safety and welfare are being recorded in meetings</p>	<p>- Working conditions of decency and dignity should be provided to all workers regardless of their employment status.</p> <p>- Permanent employees should be provided with basic training on the following items:</p> <p>environmental protection; human health and hygiene; correct handling and use of substances or materials that are hazardous or harmful for human health; etc.</p> <p>- Orientation of seasonal workers should be promoted on issues concerning health, hygiene and protection of the environment.</p>	<p>3.4.1 The social policy of a company or producer must incorporate policy on occupational health.</p> <p>3.4.2 Workers must receive ongoing training and proper equipment for safe handling of agrochemicals, machinery and farm equipment.</p> <p>3.4.3 The company or producer must provide workers with essential services and working conditions that comply with the necessary requirements for safety, health, order and cleanliness.</p> <p>3.4.4 Workers must have</p>	<p>7.1 Permanent access to safe drinking water.</p> <p>7.2 Workers have access to basic health services.</p> <p>7.3 People on the farm are trained in aspects related to hygiene and health.</p> <p>NKG indicators for small holders specifies:</p> <p>6.1 Permanent access to safe drinking water and food.</p> <p>6.2 Access to basic health services is facilitated. If there is</p>

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<p>9. Living conditions</p> <p>Core elements:</p> <p>-Permanent and temporary workers that live at the farm should have adequate living conditions with basic services.</p>	<p>Included.</p> <p>Farmer organizations work toward improving living conditions of their members.</p>	<p>Included.</p> <p>Living quarters need to be habitable and basic services and facilities need to be ensured.</p>	<p>Included.</p> <p>Farms should facilitate adequate housing with hygienic sanitary facilities and potable water.</p>	<p>Included.</p> <p>The standards also consider the location of the housing.</p>	<p>Included</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Cooperatives, Unions and associations make available all defined living conditions to their members.</p> <p>Yellow criteria: Cooperatives, Unions and associations make partly available defined living conditions and make continuous improvement.</p>	<p>12.1.1 (major): The living quarters for the permanent and seasonal workers on farm are habitable, with sound roof, windows and doors and have access to: water, dry and ventilated place to cook, dry place to eat, toilets and drains.</p>	<ul style="list-style-type: none"> - Seasonal workers and their families should be provided with suitable sanitary facilities and drinking water in sufficient amounts. - Seasonal workers and their families, living on the farm, have access to medical treatment, nutrition and accommodation. - If needed, dignified housing free of charge or in accordance to local conditions should be provided. - Suitable and hygienic facilities for the preparation, storage and consumption of food should be provided. 	<p>3.5.1 Workers residing at the production unit must be provided with adequate housing and conditions for basic health. Migrant or temporary workers must also be provided with adequate housing and basic services and healthy working conditions.</p> <p>3.5.2 All workers and their families must have access to education, medical services, transportation to work and entertainment.</p>	<p>10.1-2 Farm provides for adequate housing of people on the farm and access to hygienic sanitary facilities.</p> <p>10.4 The farm provides adequate facilities for the consumption of food.</p> <p>NKG indicators for small holders specifies that:</p> <p>8.1 Farm provides for adequate housing of people on the farm. If workers do not stay on the farm overnight, farm provides for adequate transport</p> <p>8.2 Farm workers</p>

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<p>10. Adult literacy is promoted.</p> <p>Core elements:</p> <ul style="list-style-type: none"> - All farmers know how to read and write and have basic mathematical knowledge 	<p>Included.</p> <p>Workers are entitled to receive training to improve their skills and capacities including the support for basic education.</p>	<p>Partially included.</p> <p>Training and workshops should be supported and initiated</p>	<p>Included</p> <p>It should be promoted within all the individuals at the farm that do not know how to read and write.</p>	<p>Partially included. Reference is made to environmental education programs.</p>	<p>Partially included in the index for small holders.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: All workers are provided with access to relevant education and training to apply the Code.</p> <p>Yellow criteria: Workers train their technical skills.</p>	<p>12.G.4 (Recom.): The farm or group of compliant farms motivates students who graduate from primary school to keep on studying and extends scholarships hereto;</p> <p>supports and initiates initiatives for training and workshops and motivates alphabetization of its workers.</p>	<p>The literacy of all individuals at the farm who are not able to read and write should be promoted.</p>	<p>4.6.1 The company or producer must provide environmental education programs for administrative staff, field workers and their families. These programs must include topics on environmental protection, health and hygiene, and gender, and be adapted to the culture, language and educational level of those involved.</p>	<p>9.4 The producer organization offers basic training to its members.</p>

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<p>11. Market Information</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Access to market information - Market transparency 	<p>Included.</p> <p>The coffee market information should be available to common code suppliers and buyers</p>	<p>Not included specifically but dealt with through Utz Certified's general procedures and marketing services.</p>	<p>Included.</p> <p>Farmers or farmer associations should have access to market information in order to be updated with the actual tendencies.</p> <p>It does not refer to market transparency</p>	<p>Not included</p>	<p>Not included</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: All actors along the chain provide logistics and access to technical as well as administrative means to bring a quality product to the market.</p> <p>Yellow criteria: Information on market and coffee specifics is available to all actors along the chain.</p>	There are no specific indicators.	<p>(1.4)</p> <ul style="list-style-type: none"> - Coffee producers should have access to required know-how and essential support services such as extension, financing and market information. - Producers should get access to short and long-term credit provided by reliable sources in adequate conditions. - In view of price volatility, instruments and tools allowing an improved management of price risk should be used. <p>(2.2)</p> <ul style="list-style-type: none"> - Coffee producers should stay informed about the evolution and fluctuations of the green coffee market in order to be able to sell green coffee when it is most favorable. - Producers should get access to 		

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<p>12. Product quality</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Refers to best agricultural practices. - Product complies with national and international export standards. - Quality of the product <p>reduce defects</p> <ul style="list-style-type: none"> - Prices reflect the quality produced 	<p>Included</p>	<p>Not included directly.</p> <p>However, quality aspects of the product are covered through numerous technical requirements and recommendation. Furthermore quality aspects are part of Utz Certified's system procedures.</p>	<p>Partially included</p> <p>Takes into consideration aspects of food safety. In reference to prices, takes into account the economic viability but does not make specific reference to prices.</p> <p>Green coffee shall be of good quality meeting widely accepted standards and specifications, e.g. the minimum requirements defined in the ICO's coffee quality improvement quality (ICO resolution 407).</p>	<p>Not included as part of the standards</p>	<p>Quality is not part of sustainability standards.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Monitoring of performance is in place at all levels in the chain – the information is shared and used for improvement process. The measurement of product quality is done at the export side and complies explicitly with good agricultural practices and national and international export standards.</p> <p>Yellow criteria: Monitoring is in place but sometimes limited to certain levels or aspects. Actors along the chain develop and implement a system to comply with Good Agricultural Practices in coffee production and national as well as international export</p>	<ul style="list-style-type: none"> - There should be well-maintained and clean facilities for green coffee processing. - Green coffee should be stored in a clean and ventilated environment. - When using bags, these should be dry, clean, sound, food-grade and strong jute or sisal. Old bags should be cleaned thoroughly before using them for storing green coffee. - Containers for green coffee transport should be in adequate conditions. - The staff involved in harvesting and post harvest treatment of green coffee is 	<ul style="list-style-type: none"> - Uneven or high moisture contents of green coffee should be avoid when drying. - Green coffee of different quality should be separated on the farm as well as during subsequent stages of coffee processing, storing and transport. - Defects and foreign matters should be removed as far as possible. - Green coffee shall meet the aspects of food safety and quality assuring conditions and practices that preserve the quality of food avoiding any contamination and food-borne illnesses during production, processing, packaging, handling, storage or preparation. - Cherries should be harvested at the peak of maturity; cherries picked from the ground 		

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<p>13. Traceability</p> <p>Core element:</p> <p>- A chain of custody is implemented.</p>	Not included	<p>Included.</p> <p>A documented traceability system has been put in place that allows the Utz Certified registered product to be traced back to the registered post harvest processing unit and to the farm where it has been grown.</p>	Not included	Included.	Not included

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators		1.A (major): There is a documented traceability system that allows Utz Certified registered product to be traced back to the registered post harvest processing unit and to the farm or homogeneous group of farms where it has been grown, and tracked forward to the immediate customer.		9.2.1 The company or producer must demonstrate to the certification program that products from uncertified farms are processed and packed separately from products from certified farms. The certified origin of all products from certified farms must be identified on the products where possible, as well as in any accompanying documentation.	

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<p>14. Equitable Relationships</p> <p>Core elements:</p> <p>- Business relationships facilitate joint action and provide a secure environment for investments”.</p>	<p>Included</p> <p>(ref. UN Convention on Contracts for the International Sale of Goods)</p> <p>Inmoral transactions in business relations according to international covenants, national law and practices are considered an unacceptable practice within the Code.</p>	<p>Not included</p>	<p>Not included</p>	<p>Not included</p>	<p>Not included</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Business partners are taking joint action for improvement and enable mid or long term investments.</p> <p>Yellow criteria: Pilot projects are implemented jointly with investment of all partners involved.</p>				

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<p>15. Community Relationships</p> <p>Core elements:</p> <p>- Farms being managed through sustainable principles contribute to the development of their communities.</p>	Not included.	Not included.	Included. The production and commercialization of green coffee should contribute to improve the economic situation of the producers and bring benefits to their local communities.	Farmers should contribute to the community development	Not included.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators			<p>3.9</p> <ul style="list-style-type: none"> - Preference should be given to local communities with regard to recruitment of permanent and temporary personnel, thus contributing to the build-up of sustainable livelihoods. - The producer should strive to be an active member in the community trying to contribute to its further development. - There should be collaboration with the local community on aspects of environmental protection, health and safety, as well as basic professional training. - A continuous dialog with the local community should be established, in order to share the experience gained with the implementation of the present 	<p>4.1.1 During the process of planning new production areas or infrastructure, the interests of community groups and local inhabitants must be considered in matters that directly affect their quality of life.</p> <p>4.3.1 The company or producer must contribute to the development of neighboring communities and gives community members first priority when hiring labor.</p> <p>4.5.1 The company or producer must contribute to the protection of community watersheds</p>	

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<p>16. Diversified shade</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Minimum number of trees and different species per hectare - Presence of native species 	<p>Not included.</p>	<p>Included but only in terms of preferred native species of shade trees.</p>	<p>Included but not specified in terms of minimum number of trees. The standards promote the use of native species and allow compensation with ecological compensation zones. Pruning should not affect the reproduction process neither the habitat of the different species.</p>	<p>Included with specific requirements: minimum of 70 trees per hectare, and 12 native species. Farms should have at least two different tree's stratus). Pruning should be planned, shade trees should give at least 40% shade.</p> <p>Allows exceptions for regions where coffee is traditionally not produced under shade.</p>	<p>Included with specifications in different evaluation categories, allows compensation with ecological compensation zones.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators		<p>13.B.6 (minor): Native tree species must be preferred as shade for the coffee.</p> <p>13.B.7 (Recom): Native trees should be planted within and around the coffee to provide fruit, timber and wildlife habitat, especially in the case where coffee plantations are not shadowed.</p>	<p>Shade trees of different, preferably native species should be used. Alternatively significant forest areas as ecological compensation zones should be established or maintained.</p> <p>Shade trees should be pruned without adversely affecting their reproductive process and the habitat they provide for plants, animals and insects.</p> <p>- Shade trees and nitrogen binding leguminous cover plants should be used as far as possible.</p>	<p>1.2.5 In those regions where coffee has traditionally been cultivated beneath shade trees, producers must maintain or establish a canopy cover of mixed native trees.</p> <ul style="list-style-type: none"> • The shade must be diversified with at least 12 species of native trees, and the species must be well distributed around the farm. • The density of shade tree species must be at least 70 trees per hectare. • Emergent trees must be present and well distributed throughout the farm. • The shade must have diverse structure, with at least two strata present. • Enough of the shade tree must be evergreens (non-deciduous) to provide continuous habitat, enrich the soil, help control 	<p>- Full Shade (at least 40% Density; ca. 40-80 trees per hectare; at least four different species, out of these at least two native) or 20% or more of gross area are ecological compensation zones (These areas are sufficiently linked by Biological Corridors), gets 10 points.</p> <p>- No sufficient efforts undertaken to improve shade or 5% or less of gross area are ecological compensation zones, gets 0 points.</p> <p>(Farm can get points in between).</p>

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<p>17. Conservation of Wildlife and protection of endangered species</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Wild species and their habitats are protected -Hunting is prohibited - Cutting primary forest is forbidden 	<p>Cutting of primary forest or destruction of other forms of natural resources that are designated by national and / or international legislation is considered an unacceptable practice within the Code.</p>	<p>Included.</p> <p>Requires effective measures which restrict hunting or commercial collection of flora and fauna.</p>	<p>Included.</p> <p>Renovate degraded areas is also required. The creation of biological corridors is promoted.</p>	<p>Included</p> <p>Very detailed standards. Besides protection of the species and their habitats, vegetation barriers between the crops and the human activity areas and the environmental training to the farm workers are very important. Reforestation and recovery of natural ecosystems programs (including maps) should exist.</p>	<p>Partially included. Focused on shade, buffer zones and ecological compensation zones.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Self-initiated conservation action or participation in nature conservation plans and programmes takes place. Native flora is protected and enhanced.</p> <p>Yellow criteria: Demarcation and signage of coffee farms to protect wildlife and endangered species. Native flora on the farms and its biotopes is identified and biotopes are inventorized</p>	<p>13.B.2 (major): Deforestation of Primary Forest is prohibited, whereas justified cutting for domestic use of primary forest only under management plan is possible. Deforestation of secondary forest is not allowed without compensation or a recovery plan.</p> <p>13.B.3 (Recom.): All areas in the farm not suitable for coffee production should be reforested.</p> <p>13.B.4 (Minor): All forest patches not used for coffee plantations should be conserved.</p>	<p>- The farmer should contribute to the creation of a diverse landscape that serves as wildlife habitat and as a migration corridor for birds, other animals and insects.</p> <p>- Areas of high ecological value located on the farm should be protected, such as streams, wetlands and forests, via the minimization of human intervention and the implementation of measures for the conservation of biodiversity, soil, water, flora and fauna in those areas. Such areas need connecting in order to create biological corridors that enable the migration and the exchange of species.</p>	<p>1.1.1 Existing remnants of natural ecosystems (ponds, lakes, rivers, streams, forest areas or others) must be demarcated, protected, conserved and restored.</p> <p>1.1.2 New production units must not be established in areas with primary forest or advanced stages of secondary forest.</p> <p>2.1.2 When production units contain several fragments of forest, they must be united by a greenway or forested corridor. Strategies must be</p> <p>2.2.1 Strategies must be established to protect threatened and endangered species and their habitats.</p> <p>2.2.2 No hunting, fishing or extracting flora and fauna is permitted with respect to endangered species or species threatened with extinction, except in cases where individuals are from registered breeding programs or plant nurseries managed in compliance with pertinent local and international laws.</p>	See criteria # 16, 23 and 24.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>18. Use of agrochemicals</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Minimize quantity and toxicity of agrochemicals - Promotion of integrated pest management. - Prohibition of the internationally recognized “most hazardous” chemical pesticides) 	<p>Use of pesticides and the effect on human health and on the environment is minimized.</p>	<p>Evidence must be made available to prove implementation of IPM techniques, where technically feasible.</p> <p>All crop protection product application records include a lot of details.</p>	<p>Included.</p> <p>The use of agrochemicals should be justified and the farm should create favorable conditions for natural pest’s enemies.</p>	<p>Included.</p> <p>Use of pesticides class 1 and 2 has to be well documented and justified. The farm has to demonstrate rotation and reduction of agrochemicals.</p>	<p>Included.</p> <p>Refers specifically to pesticides class 1 and 2.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Use of Integrated Pest Management (as defined precisely).</p> <p>Yellow criteria: WHO I / II / FAO code recommendations; spray after monitoring → to be defined precisely</p>	<p>8.A.1 (major): All crop protection product inputs are documented and include written justifications, target and intervention thresholds.</p> <p>8.A.2 (minor): Evidence is available to prove research and implementation of IPM techniques, where technically feasible.</p> <p>8.B.3 (major): All the crop protection products applied are officially registered or permitted by the appropriate governmental organization in the country of application.</p> <p>8.B.6 (major): The documented crop protection product application records confirm that no crop protection</p>	<p>Collateral effects on soil fertility, when using agrochemicals as well as fertilizers and pesticides should be minimized.</p> <p>- Fertilization should be done – as much as possible – according to soil analysis and yield expectations.</p> <p>- Agricultural inputs should be used in a precise manner, based on the careful evaluation of all relevant factors, including if possible soil analysis.</p> <p>- Crop protection should be done through an Integrated Pest Management (IPM) approach that puts the emphasis on mechanical and biological means of control.</p> <p>- If the use of agrochemicals is necessary, they should be used in a manner that is appropriate for coffee and for the reason of treatment.</p> <p>- Only agricultural inputs of lowest toxicity possible should be used.</p>	<p>5.1.1. Control of pest populations must be based on ecological principles that give priority to the use of physical, mechanical and biological practices and the reduction of agrochemical use.</p> <p>5.1.2 The company or producer must implement a pest monitoring and evaluation system to determine the use of chemical controls.</p> <p>5.1.3 The production unit must implement a verifiable program for crop rotation and reduction of chemical products.</p> <p>5.2.1 Synthetic chemical products used by the production unit must be registered for use on the crop.</p> <p>5.2.2 Chemical products prohibited by international agreements may not be used, including the “Dirty Dozen”, products banned by the United States Environmental Protection Agency (USEPA), and any products whose license for the crop is no longer valid.</p>	<p>- No pesticides of class 1 or 2 should be used. The overall quantity of pesticides applied should be as low as possible.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>19. Application of agrochemicals</p> <p>Core element:</p> <p>Field workers have received adequate training and use of protective clothing</p>	Not included.	<p>Included.</p> <p>Required annual health checks for workers undertaking crop protection product applications. They also need to be equipped with suitable protective clothing.</p>	<p>Included. Effective measures should be taken to protect workers' health.</p>	<p>Included with very specific details about suitable people that can apply agrochemicals, documented trainings and about adequate equipment: work cloth, vinyl back protector, mask with filter, gloves, boots, hat and protection glasses.</p>	Not included.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators		<p>6.B.1 (minor): Documentary evidence must be available that demonstrates training and competence of the technically responsible person on the farm to estimate quantity and type of fertilizer (organic and inorganic) to use.</p> <p>12.D.1 (Recom.): Records of health checks within the last 12 months are available for workers who undertake crop protection product applications, including analysis of blood samples specifically for crop protection product residues.</p> <p>12.D.3 (major): There are available and in a good state of repair, complete sets of protective clothing, e.g. rubber boots, waterproof clothing, protective overalls, rubber gloves, face masks etc.</p>	<p>- Effective measures should be taken to protect health and safety of farm workers who handle or are exposed to agrochemicals.</p>	<p>5.5.1 Agrochemicals may only be applied by trained persons deemed physically suited for this type of work by medical tests.</p> <p>5.5.2 Application must be carried out using correct dosages and equipment (including personal protective gear).</p> <p>5.5.3 Agrochemical application must comply with all procedures necessary for the safety of workers, communities and the environment, including restricted access periods stipulated by the USEPA.</p> <p>5.5.4 Showers and dressing rooms must be available for workers, along with one area exclusively for washing personal protective gear and another for washing application equipment.</p> <p>5.5.5 Application of fungicides to control post-harvest diseases must avoid contaminating the environment and adversely affecting workers. Measures must be taken from adverse effects of aerial fumigation.</p>	

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>20. Storage of Agrochemicals</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Specific infrastructure - Agrochemicals are stored separately from other products 	Not included.	<p>Included.</p> <p>Stored apart and separate in a well-ventilated area.</p>	<p>Included but not very specific (Agrochemicals have to be stored separately from other agricultural products and forbidden agrochemicals must not be stored).</p>	<p>Very specific, including the building of special infrastructure, precise definition of distance to living areas, ventilation of storage rooms, safe measures and transport of agrochemicals)</p>	<p>Included in a general way, storage should be adequate.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators		<p>8.G.1 (minor): The crop protection product storage facilities comply with all the appropriate current national, regional and local legislation and regulations.</p> <p>8.G.2 (minor): It is built in a manner, which is structurally sound, secure under lock and key, with sufficient ventilation and illumination.</p> <p>8.G.3-4 (minor): It is built of materials that are fire resistant and located in a separate air space independent from other materials.</p> <p>8.G.6-7 (minor): It has an spillage retention system and the crop protection product measuring / mixing area has standardized measuring equipment to assure accuracy of mixtures.</p> <p>8.G.8 (minor): It has emergency facilities to deal with operator contamination and</p>	<ul style="list-style-type: none"> Any toxic agricultural input should be stored separately on the farm. 	<p>5.4.1 Agrochemicals must be stored in areas exclusively designated and designed for this purpose. The storage area must be located at prescribed distances from buildings, houses, rivers and other water sources, protected areas and storage areas for fuels and lubricants.</p> <p>5.4.2 Agrochemical storage areas must be designed so as to reduce the risk of accident and adverse impacts on human health and the environment.</p> <p>5.4.3 Handling of agrochemicals in storage areas must follow strict safety standards ensuring that workers are protected and the environment is not harmed.</p>	There are no specific indicators.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>21. Management of soil fertility</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Based on soil analysis - Erosion is prevented - Maintenance of soil cover 	<p>Soil conservation practices are in place.</p>	<p>Included.</p> <p>Techniques need to be applied which maintain soil structure.</p> <p>In addition, there is visual or documented evidence of cross line techniques on slopes, drains, sowing grass or green fertilizers, trees and bushes on borders of sites etc.</p> <p>Furthermore, it needs to be demonstrated that the needs of the crops are met whilst maintaining soil fertility, through a documented crop fertilizer program, routine soil and/or foliar analysis, and previous application records or other technically valid justifications, with specific consideration to the use of Nitrates.</p>	<p>Included with detailed recommendations for erosion prevention and improvement of soil fertility based on soil analysis and production expectations. Farms should have soil cover all year around.</p>	<p>Included. Emphasis is given to erosion control; conservation of fertility and it also takes into account the analysis of new areas of production in terms of soil quality. Prohibits the use of soil disinfectants.</p>	<p>Included with several indicators regarding soil cover, erosion prevention and fertilization according to soil analysis.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Full implementation and periodical review of the soil management plan. Apply fertilizers according to the need of the crop (e.g. based on expected yield) derived from monitoring and soil and plant analysis, encouraging the use of organic material without depleting nutrient stocks in other areas.</p> <p>Yellow criteria: Assessment of management options, preparation of a soil management plan in line with conservation agriculture, start implementation with measures of highest priority.</p> <p>Fertilizing based on standardized prescriptions</p>	<p>6.A.1 (minor): The technically responsible person on a farm or group of compliant farms is able to demonstrate that fertilizers are applied judiciously through a documented crop fertilizer program. This may include routine soil and/or foliar analysis, previous application records, or other technically valid justifications on the basis of crop needs to prevent over-fertilization with specific consideration of the use of nitrates.</p> <p>5.B.1 (Recom.): Techniques have been used where proven to improve or maintain soil structure, and to avoid soil compaction.</p> <p>5.C.1 (minor): There is visual or documented evidence of</p>	<p>- Agricultural inputs should be used in a precise manner, based on the careful evaluation of all relevant factors, including if possible soil analysis.</p> <p>- The restoration of vegetation should be promoted in degraded areas that have been prone to loss of fertility or soil erosion, preferably by using native species.</p> <p>- The soil should have a vegetative cover all year long.</p>	<p>8.2 A soil conservation plan to minimize erosion must be implemented. The plan must consider the topography, type of soil, climatic conditions and agricultural practices of the Area:</p> <ul style="list-style-type: none"> • It should promote the conservation of soils by way of windbreaks, vegetative barriers, cover crops and contour and terrace planting must be employed where conditions warrant. • It should promote the use of cultural practices in order to control weeds. • It should document and control those practices that in some way further erosion and other forms of degradation. 	<p>4.1 Measures should be implemented to prevent erosion.</p> <p>4.2 The soil cover is measured (more than 90%, between 50 and 90%, less than 50%).</p> <p>4.3-4.4 Soil analysis must be done at least every three years (total acidity and content of organic matter are the main indicators).</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>22. The use of organic matter is promoted</p> <p>Core element:</p> <p>- Recycling of the organic materials from the farm.</p>	<p>Organic matter management is in place</p>	<p>Included.</p> <p>Organic by-products should be used on the farm as fertilizer.</p>	<p>Included. Promotes composting by-products of coffee production and processing.</p>	<p>Included (the use of organic matter is not obligatory).</p>	<p>Included with emphasis of pulp recycling.</p>
<p>Indicators</p>	<p>Green criteria: Proper use of organic matter to replace other inputs.</p> <p>Yellow criteria: Reuse and recycle organic matter..</p>	<p>6.F.3 (Recom.): Organic by-products are used on the farm as fertilizer.</p>	<p>All organic material from the farm that is not being used for any specific activity to the field either directly or after processing (compost, etc) should be returned to the soil.</p>	<p>6.3.1 The production unit must give priority to composting of organic waste as a treatment system.</p> <p>8.3 Farm management practices must promote the conservation and recuperation of the soil's fertility, quantity of organic material, biological activity, and structure.</p>	<p>3.1 Coffee pulp should be recycled.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>23. Conservation of water resources</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Prevention of water pollution - Water is not wasted. 	<p>Water resources are conserved concerning quality and quantity aspects.</p>	<p>Storage of agricultural products should prevent water pollution.</p> <p>Use of sustainable sources is required.</p>	<p>Included with comprehensive recommendations: reduction of water use, prevention of water pollution and adequate management of sewage and gray water.</p>	<p>Included with comprehensive recommendations as SAI standards, and also takes into consideration water monitoring and management of underground water</p>	<p>Included. Emphasis is given to buffer zones protecting natural water resources and takes into account the awareness of the farmers with regard to water use and water protection.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Enhancement of water replenishment capacity / quality / water saving technology.</p> <p>Yellow criteria: Implementation of water conservation practices.</p>	<p>6.E.6 (major): All inorganic fertilizers, i.e. powders, granules or liquids are stored in a manner which poses minimum risk of contamination to water sources.</p> <p>6.F.1 (minor): If organic manure is stored on the farm, the storage should be designed to minimize risk of contaminating water sources from rainfall run-off , at least 25 m from direct water sources such as surface water.</p> <p>7.B.1 (Recom.) The most efficient and commercially practical water delivery system has been used to ensure the best utilization of water resources.</p> <p>7.C.2 (minor): Risks of water pollution or contamination by irrigation/fertigation are assessed annually.</p> <p>7.D.1 (minor) The irrigation water has been extracted</p>	<p>- The volume of water used to irrigate plantations via the application of proper techniques should be minimized.</p> <p>- The volume of water used in wet processing of coffee via the application of efficient technologies and recycling of water should be reduced.</p>	<p>7.2.1 Reduced water use and reutilization must be promoted.</p> <p>7.3.1 No contaminating substances may be dumped into bodies of water, with special attention given to agrochemicals, fuels and lubricants.</p> <p>7.5.1 The quality of drinking water must be ensured by periodically monitoring its physical, chemical and biological characteristics.</p> <p>7.6.1 <i>An environmental management program must be established in production units using underground water to protect this resource.</i></p>	<p>2. 1 The farm should monitor water use in coffee processing in terms of quantity (from <4 l/kg green coffee to >20 l/kg green coffee)</p>

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<p>24. Buffer zones at natural waterways</p> <p>Core elements:</p> <ul style="list-style-type: none"> - No crops are planted at the edge of waterways - Natural vegetation or specific kind of plants protect the natural waterways 	Not included	Included, but does not mention specific guidelines for buffer zones.	Included but not specified. Preferentially native species should be used.	Included with specific guidelines.	Included.

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
		<p>13.B.8 (minor): Native vegetation is allowed to grow along streams to control erosion, filter out agrochemicals and protect wildlife habitat.</p>	<p>- Buffer zones adjacent to waterways, preferably with native species should be planted, maintained or restored.</p>	<p>7.1.1 Buffer zones must be established along rivers, lakes, streams and springs (minimum of 10m of both sides without cultivation of Coffee). The course of the natural water network must not be altered.</p>	<p>2.3 There should be buffer zones adjacent to waterways with no coffee production (5 m of both sides).</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>25. Waste water management</p> <p>Core element:</p> <p>- Waste water from all activities at the farm receives treatment</p>	<p>Waste-water management is in place.</p>	<p>No use of untreated sewage water.</p>	<p>Included with several guidelines regarding processing and other farm activities (gray water and sewage). Superficial and underground water should be protected from being polluted.</p>	<p>Included. All waste water generated from farm activities should receive treatment. Monitoring of waste water is also required.</p>	<p>Included with reference to coffee processing, requires water analysis.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
	<p>Green criteria: Minimization of discharged load of contaminants.</p> <p>Yellow criteria: Recycling and reuse of treated waste water.</p>	<p>11.B.1 (recom.): All possible waste products and sources of pollution (including gray and black waters, fuels and lubricants, fertilizer excess, exhaust smoke for heating units etc.) produced by the farm processes and the post harvest treatment operation have been catalogued and documented.</p>	<ul style="list-style-type: none"> - The pollution of waterways on or near the farm should be prevented or minimized where unavoidable. - The discharge of untreated farm activity effluents into natural superficial waters should be avoid. - Other existing or potential sources of pollution, such as sewage should be properly managed, in order to prevent the pollution of superficial and underground water. - Availability and functioning of septic tanks or other alternative and appropriate means for the treatment of human excrements, should be assured. 	<p>7.4.1 All residual waters generated by the activity must be treated using clean technologies.</p> <p>7.5.1 The monitoring system for residual waters must indicate pollution levels. The monitoring system must be consonant with the intensity and size of the production system and existing ecological resources.</p>	<p>2. 2 The quality of water effluents (processing station) should be evaluated in terms of COD. (not required for small holders).</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>26. Waste management</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Recycling - Reduce - Reuse - Visual cleanliness 	<p>Safe waste (including packaging) management is in place.</p>	<p>Calls for a documented plan to avoid or reduce wastage and pollution, and its implementation.</p> <p>Coffee by-products such as pulp, hull, husk and parchment shall be reused as fertilizer, mulch or energy source.</p>	<p>Included but emphasis on processing and harvest. Promotes the three basic principles: reduce, reuse and recycle. Inorganic waste that cannot be recycled should not be burned.</p>	<p>Included, emphasis is given for an integrated waste management of all kinds of generated waste. Farms should be clean and the final waste disposal should reduce pollution risks for the environment and human health.</p>	<p>Included at processing and farm level. Visual cleanliness of the farm is also important.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
	<p>Green criteria: Minimize waste generation, maximize reuse and recycling and ensure safe disposal of waste.</p> <p>Yellow criteria: Recovery, segregation and safe treatment of hazardous waste; farmer - municipality – supplier.</p>	<p>11.C.1 (Recom.): There is a comprehensive, current, documented plan to avoid, reduce or recycle waste to minimize land filling and burning of waste.</p> <p>11.C.2 (Recom.): There are visible actions and measures that confirm that the objectives of the waste and pollution action plan, is being carried out on the farm and in the post-harvest treatment operation.</p>	<p>The farmer should continuously reduce, reuse and recycle the quantity of waste and byproducts that are produced on the farm.</p> <p>Inorganic waste that is not recyclable, including chemical and toxic substances should not be burned. It shall be handled appropriately.</p>	<p>6.1.1 Production units must have a plan aimed at reducing residues or waste and for replacing production systems that generate waste contaminating the environment or harmful to the health.</p> <p>6.2.1 The company or production unit must implement strategies for reusing waste whenever possible.</p> <p>6.3.2 A system must be implemented in the production unit to recycle non-biodegradable waste such as plastic, paper, wood, metal and glass.</p> <p>6.4.1 The production unit must be kept clean and free of accumulations of waste of all types, including scrap, domestic waste and litter.</p> <p>6.5.1 The final disposal of waste</p>	<p>3.2 Waste management should be done considering the 3 principles (recycle, reuse and reduce).</p> <p>For small holders:</p> <p>4.4 Visual Cleanliness of the farm (separate storage areas for waste)</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>27. Use of energy</p> <p>Core element:</p> <p>- Use of renewable energy</p>	<p>Preferential use of renewable energy.</p>	<p>Solar means for coffee drying shall be used wherever possible.</p> <p>In addition, if fire woods are used as fuel for coffee drying, it should come from managed woodlots or pruning from within the farm itself and not from native forests, unmanaged community forests watersheds or protected areas.</p> <p>Furthermore, a system measuring the use of energy should be in place and documentary evidence should exist which shows an efficient use of energy in the whole post harvest treatment process.</p>	<p>Promotes the use of renewable energy. Adequate energy use should contribute to avoid air pollution (firewood might only be used when it is unavoidable).</p>	<p>Not included.</p>	<p>Not included in the index for small holders.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Maximization of renewable energy sources without surpassing their regeneration capacity is evident. Energy use is minimized.</p> <p>Yellow criteria: Managements options for use of renewable energy are assessed, and implementation according to priority for the replacement of fossil with renewable energy is started. Use of energy is regularly evaluated.</p>	<p>11.A.1 (minor): Coffee by-products must be re-used as fertilizer, mulch or energy source or sold. Parchment can be burned as energy source for machine drying or energy source, it cannot be burned as waste.</p> <p>13.C.1 (minor) : A system measuring the use energy is in place.</p> <p>13.C.2 (minor): Documentary evidence exists showing an efficient use of energy in the whole post harvest treatment process.</p>	<p>- The producer should strive to reduce the use of non-renewable sources of energy and increase the use of renewable sources of energy.</p> <p>- Firewood can be used only if it is unavoidable and comes from well-managed sources like shade trees, specific (fast growing) trees planted for this purpose or reforested areas, or from pruning residues only. (The use of firewood from natural forests is forbidden).</p>		<p>5.2 Measures to continuously reduce energy use and replace non-renewable energy sources with renewable energy are implemented.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>28. Management Plan to comply with sustainable standards</p> <p>Core element:</p> <p>- Plan and registration of activities</p>	<p>A management plan is transparently developed and applied by the actors along the chain (how to comply with the code).</p> <p>Regional specification / specification in production systems!</p>	<p>Included.</p> <p>The farm management plan should include water management, waste management and wildlife conservation management.</p>	<p>Included.</p> <p>Requires a management system at the farm level.</p> <p>Responsibilities have to be defined within the management plan.</p>	<p>Requires management system to comply with RA standards at farm level.</p> <p>Internal audits are required.</p>	<p>Not included in the index but in the NKG standards.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
	<p>Green criteria: Practical Management Plans are agreed upon and understood by all actors and being implemented.</p> <p>A management plan on producers' level should be defined.</p> <p>Yellow criteria: Management plans suitable for verification are jointly being developed and tested.</p>	<p>2.B, C and D (major). There is documentary evidence that the internal selfinspection has been carried out, that the Utz Certified Checklist has been completed and documented and effective corrective actions are documented and have been implemented.</p>	<p>The farm should dispose of a functioning sustainability management system, geared towards continuous improvement of the production practices over time.</p> <p>Responsibilities within the farm's management system should be clearly defined.</p> <p>People working on the farm should be aware of the relevance of their co-operation and responsibility in the economic, social and environmental sustainability of the farm.</p>	<p>9.1.1 The company or producer must draft and document a plan for planning and implementation of the standards proposed by the certification entity, detailing the objectives, goals, those responsible and a timetable of activities to be carried out in the production unit to improve socio-environmental conditions in the short, medium and long term.</p> <p>9.2.1 The company or producer must implement a monitoring system (internal audit) of socio-environmental impacts. The complexity of this system should be in keeping with the magnitude or intensity of the production systems and of the existing natural and human resources.</p> <p>9.2.2 The monitoring and evaluation system must be periodic and must provide sufficient information to implement the farm management plan.</p>	<p>There are no specific indicators.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>29. Economic sustainability</p> <p>Core elements:</p> <ul style="list-style-type: none"> - Financial management at all levels (accounting) - Profitability of the business 	<p>Partially included.</p> <p>Cooperatives / exporters / associations improve capacity of producers and smallholders to have (appropriate / adequate / unrestricted) access to market information, training, financial credit and supply of inputs.</p>	<p>Included.</p> <p>Aspects of economic sustainability are part of UC's general procedures and implementation phase, such as support at the point of trading.</p>	<p>Very important aspect. Farmers should know about their costs, have market information, be able to select an adequate marketing chain and have a good financial management (in case of cooperatives) and have long term business relationships.</p> <p>Farmers should look to give added value to their product.</p> <p>Farming systems can only be sustainable if they are economically viable.</p> <p>An adequate farm income is necessary to support an acceptable standard of living for farmers as well as to ensure required investment to improve the farm performances in the long-term.</p>	<p>Not included.</p>	<p>Included.</p> <p>It is a very important aspect. Farmers should be able to do basic accounting and evaluate the feasibility of their business in the long term.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
Indicators	<p>Green criteria: Cooperatives / exporters / associations systematically improve the capacity of producers and smallholders to access adequate agricultural services.</p> <p>Cooperatives / exporters / associations develop a system for producers & smallholders to have access to adequate services.</p>	There are no specific indicators	<p>- The producer should look for relevant coffee specific technical information that enables sound decision-making for the coffee production and should try to build up financial reserves in order to avoid being obliged to sell production for urgent need of cash.</p> <p>- Sound financial management should be applied to assure liquidity during production, harvesting, treatment and trade of coffee. This relates in particular to larger farms and cooperatives.</p> <p>- The producer or organization should optimize timing of coffee deliveries and select efficient trading channels in order to be able to sell when conditions are favorable.</p>		<p>Smallholders should have basic administration knowledge considering:</p> <p>10.3 Basic Accounting Procedures</p> <p>10.4 Long-term financial planning</p>

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Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
<p>30. Farm diversification</p> <p>Core element:</p> <p>- The farm has not a 100% dependency on one crop</p>	Not included	Not included.	<p>Included</p> <p>The farm income has to be diversified, even with non agricultural activities</p>	Not included	<p>Included.</p> <p>Diversification is seen as an important aspect to reduce the risk, but not obligatory. It depends on each particular situation.</p>

Criteria	4C	Utz Certified	SAI	Rainforest Alliance	NKG Standards and NKG Sustainability Index
			<p>- Overall crop cultivation and other economic activities should have a of fair return on use of labor, capital and land.</p> <p>- The producer should look to diversify the sources of income by growing alternative commodities on the farm, either for on-farm consumption or to be sold externally, as well as through the development of non-farming activities.</p>		<p>For smallholders it is part of the indicators:</p> <p>10.2. The farm is diversified</p>

Appendix 2: Recommendations for improved indicators for sustainable coffee standards

This section begins by listing and discussing concrete examples of present indicators and their core elements and suggests possible improvements based on the groups of indicators that were identified in Section 7 as the most important global gaps to be overcome. It continues with a discussion on how codes should be changed to facilitate both technical and financial implementation issues, making codes more viable for larger groups of producers. Some concluding discussion points for this section, concern suggestions on how to enhance the attractiveness of codes for producers by creating learning experiences that may result in concrete practical recommendations for the improvement of sustainability at the field level.

Freedom of association and collective bargaining

This criterion can be divided into two main issues: first, the rights of farmers to organize themselves and bargain collectively. Second, how these rights apply to seasonal workers.

In all areas studied there is potential for meeting the criterion of freedom of association and collective bargaining. However, care should be taken not to assume that the existence of an organizational structure automatically means that this criterion is met. Numerous examples of failed cooperatives, for example, warrant this caution. Ideally, coffee programs would have a comprehensive list of performance indicators for cooperatives or farmer associations.

Although it must be noted that while farmers in the assessed regions are organized in one way or another, seasonal workers often are not. Strategies for alleviating this situation have, depending on the area, focused on the strengthening of existing organizations or even by creating entirely new ones. In the case of El Salvador, a proposal was made during the research phase that rather than organize seasonal workers it might be more appropriate to use the existing cooperatives and have them distribute a Code of Conduct among seasonal workers and member farmers. This Code would contain seasonal workers' rights and also a complaint procedure to facilitate mediation when a conflict arises between seasonal workers and their employers. Given the fact that most seasonal workers stay at the farm or even in the region for only short periods of time, the formation of unions or other seasonal workers' organizations is very difficult to achieve.

This situation, with seasonal workers that are not or only to a limited extent organized, is commonly found in most coffee producing areas. Generally three different types of situations can be distinguished:

- A situation where farmers that employ seasonal workers are organized in cooperatives or farmer associations. Here the cooperative structure can be used to draft and distribute a Code of Conduct listing workers' rights and appropriate channels for complaint and mediation procedures;
- A situation where farmers that employ seasonal workers are not linked to a cooperative but have entered into a contract farming arrangement with a central mill or exporter. In this situation such a Code of Conduct could also be used by taking it up as a clause in the farming or supply contract.
- Entirely independent farmers that are certified typically have to have a large enough area to generate sufficient supply of certified coffee. In this case the farm is audited as an individual unit and their obligation on seasonal worker rights would be easily met by either a Code of Conduct or the use of written or oral contracts.

In summary coffee codes, rather than insisting on the need for seasonal workers to organize themselves, may wish to adopt a more pragmatic approach that uses a Code of Conduct stipulating workers' rights and complaint procedures. The role of the coffee certification programs would then be to outline the preconditions that such a Code of Conduct should meet. Auditing is likely to be simplified, being limited to (i) existence of the Code and (ii) asking workers whether they have the code. However, the auditor may still need to assess whether the complaint procedure actually functions, which, unfortunately, may be quite difficult during a limited farm visit.

In this sense although a Code of Conduct could provide a pragmatic solution to the realities of seasonal workers having difficulty or seeing little value in organizing, it does present the potential problem of being extremely difficult to verify. It also may have the tendency to limit the collective bargaining power that workers could achieve if organized. However, given the importance of this standard and the workers' ability to be effectively represented, a viable solution must be sought. It is clear that simply requiring a union or association is not sufficient given the reality of seasonal workers and that a code of conduct could be an important step towards a solution. How to make such a code effective and verifiable is a process which still must be identified.

Discrimination

Although DISCRIMINATION is in all areas considered in this study not perceived as a problem, several codes require proof of the absence of discrimination. However, what constitutes proof, how it should be presented and effectively what purpose it serves remains vague. There is an absence of a clear unambiguous definition of discrimination and the fact that what constitutes normal in one culture may be considered discriminatory in another. Hence, a more practical strategy may be to rely on local peoples' opinions for this criterion. Care should be taken that the auditor talks to representative shares of ethnicities, religious groups and men and women in the audited region.

Written contracts

In most smallholder settings WRITTEN CONTRACTS are quite unusual. The reason why sustainability standards require written contracts is to ensure that workers are not exploited and that this can be verified by the auditor.

In some of the cases in the study regular employees have written contracts, but seasonal workers are commonly hired on oral agreements. This leads to a major gap in all assessed regions but Espirito Santo. The extent to which this gap negatively influences the well-being of seasonal workers is debatable. Reasons are that first written contracts have different meanings in different areas. In South-East Asia, although not included in this study, the general impression seems to be that a written contract is a snapshot of reality taken at the time of signing. As reality changes signatories may not feel the need to continue to follow the contract. Secondly, in other countries written contracts, although perhaps prescribed by national laws, may well be meaningless because there is no adequate judicial structure where disagreements can be settled fairly. Thirdly, several coffee producing regions, such as Masaka County in Uganda, have high rates of illiteracy limiting the usefulness of written contracts. Fourthly, written contracts may not be reinforced neither by smallholder farmers nor by seasonal workers as they could provide a thorough basis for assessing tax payments.

Similar to the issues concerning freedom of association and collective bargaining, a Code of Conduct may alleviate compliance problems more effectively than the insistence on written contracts. Such a Code of Conduct should contain topics such as minimum wages, working hour regulations and most importantly, a procedure for dispute mediation. This allows farmers and seasonal workers to continue their relations as they have traditionally been doing and does not place excessive administrative burden on farmers while still ensuring workers' rights. However, the problem of transparent dispute mechanism and an effective verification system for such a code still remains and would need to be addressed.

Storage and applications of agrochemicals

Core issues are storage conditions, the availability and use of protective clothing, adequate record keeping of applications as well as the disuse or substitution of highly toxic products (e.g. Dirty Dozen).

Storage conditions are an issue that might be fairly straightforward to solve if farmers are allowed to use local materials. Alternatively, codes could promote just-in-time logistics where appropriate. This implies that farmers buy crop protection products just before applying them and thereby lower the requirement for storage facilities. However, this only works if farmers have regular access to these products.

The use of protective clothing, although commendable, may not always be practical. First, many farmers simply refuse such equipment, and anyone who has ever used it while spraying in 30°C heat will understand why. This leads to the disheartening conclusion that even if farmers would have the protective clothing available to them they may not use it. In addition, there is hardly any practical way for the auditor to find out. To both preserve credibility of coffee certificates by ensuring that auditing indicators that may be assessed effectively and provide the producer with a more useful criterion the emphasis may need to shift. Rather than demanding protective clothing or forbidding spraying without it, a more suitable indicator may be that a group of producers must prove that they have been given training to their members on the dangers of pesticide use and shown channels or have offered support on the procurement of protective clothing. With such information and resources as a decision making basis the farmer can take his/her own responsibility.

Record keeping for all applications of agrochemicals is not commonly practiced. Still, to ensure the commonly found food-safety objective of especially Utz Certified, but also other certification schemes, ways of record keeping have to be identified and implemented.

Management of soil fertility

This criterion seems to be an issue where compliance increases when households are better off. Several codes either require a soil fertility management plan or soil analyses or soil maps to support decision making. In principle this is a good development. However, if codes are to be meaningful for smallholders with little means this criterion may have to be reconsidered.

Two problems can be identified in the formulation and application of this criterion:

Using the example of the 4C the requirement of management plans makes several assumptions:

- That farmers can write, or if they can't, that an alternative structure is available that allows them to have the plans written up;
- That farmers can adhere to such a plan. Given the heavy fluctuations of coffee prices and the limits that poses on the use of inputs (such as fertiliser and compost) and labour spent applying them, this seems unlikely; and
- That the plans actually make agronomical sense, which may not always be the case. Of course this is implicit in this criterion, but codes have no transparent means of assessing this.

Although 4C's management plans have been taken as an example, these issues can also be found to larger or smaller degree in the other codes. The problem is that none of these assumptions is

comprehensively addressed in the codes, rendering the criterion on soil fertility effectively useless, unless suitable formats for management plans for farmers are identified.

In none of the codes reference is made to the scale at which either plans, soil samples or soil maps should be produced. A fine example is a recent Utz Certified audit in a company (whose name will not be disclosed for obvious reasons) which produced a very nice soil map. Only the scale was far too small to allow any meaningful use by farmers or technicians. Still, even if suitably scaled maps are available, one still assumes that farmers/technicians know how to: (i) read such a map; (ii) understand its implications for coffee; (iii) are able to formulate suitable interventions; and (iv) have the financial capacity and appropriate skills to act on these implications and interventions. The present formulation of this criterion in most codes is simply too ambiguous. In this way the codes miss their target twice. First, the availability of soil maps, samples or management plans does not reassure the consumer that sustainable soil use is practiced. Secondly, it does not generate any useful feedback to farmers/technicians on how soil management should be adapted to increase sustainability of production.

ADAPTATION OF INDICATORS

Although not supported by hard data (this was unfortunately outside the scope of this study) a detailed look at the codes shows that several criteria that are measured at farm or cooperative/company level are actually in the sphere of influence of local and in some cases national government. Needless to say, improvements are needed in many cases, but it is questionable to what extent keeping producers responsible for complete or partial government failure serves the objective of coffee codes.

A cost reduction in compliance may be achieved when codes keep producers responsible only for those criteria that directly concern them and are within their sphere of influence. To illustrate the need for this, an example from El Salvador might highlight where producers have been kept responsible for issues outside their influence.

In this country farmers follow Ministry of Health instructions for the disinfection of drinking water by adding the pesticide TEMEFOS to combat mosquito born diseases such as dengue fever and malaria. Reportedly, TEMEFOS may have negative health effects on people. During the assessment made for this study an experienced auditor recommended a detailed study into the effects of TEMEFOS and the exploration of alternatives. Although highly commendable and urgently needed, the problem is that the responsibility is placed at the feet of producers, in this case a cooperative, while provision of access to drinking water is commonly regarded as a responsibility of the government.

IMPROVEMENT OF INDICATORS

Although sustainability standards go a long way towards improving sustainability, there is still some ambiguity in the various codes, their criteria and indicators. This ambiguity hinders achievement of code objectives in that it may ultimately reduce consumers' confidence in the integrity of the certificate. Simultaneously, producers could be served better than is presently the case. Presently, most codes have their "checklists". If the producers comply with these checklists they automatically produce sustainably according to the respective Code of Conduct. Obviously, such lists are needed, but the effects of such lists on producers have great potential to be maximised.

Present indicators seem biased towards consumers. This means that while providing information on the situation in coffee farms they do not provide much valuable information for farmers themselves to guide them in improving operations. For sustainability to take real root in producing countries codes may wish to explore how indicators can serve the purpose of ensuring consumers on food-safety, traceability and information on the coffee producer community while at the same time generating information that can be used by producers to improve on-farm efficiency. This is quite vital, because present indicators offer little incentive to make continuous farm-level improvements. By definition improvements beyond code compliance are not recognized in any of the codes—notwithstanding the fact that most codes explicitly promote continual improvement.

INFORMATION FEEDBACK

If more quantitative indicators are going to be used codes should improve their feedback mechanism of the information gathered during audits to producers. Presently, but this may vary by auditor, feedback to producers seems limited to only what should be improved. Often these issues are interpretations of the auditor and although carefully weighed against the code that was used, the feedback information is not per definition based on hard data. Worse is that this data does not necessarily say how coffee farming may be improved. A combination of more quantitative and useful indicators and better feedback mechanisms may improve this situation.

This would have to aim at learning experience that clearly shows the areas where the producers concerned can make improvements in sustainability and efficiency of production. Feedback loops can also serve to attain the elusive goal of "continuous improvement". Such information exchange can serve to show that complying with a standard may have a strong link with overall agronomical and economical performance of the farm and thereby increases the confidence of the producer in the certification scheme.

A further step that could be taken is for auditors to partly process data gathered in a standardized format. For example the indicator on nutrient applications and nutrient removal allows for easy calculations that may show producers not only that they comply but also by how much they can still improve. Or if they don't comply, by how much nutrient application should ideally be reduced or increased.

FARMER OWNERSHIP

Farmers do perceive codes often as rules and regulations imposed externally which they are required to follow to improve market access. This is understandable as it seems that codes often have been designed with insufficient involvement of farmers and in particular smallholder farmers reflecting on their typical environment. Codes still constitute a very comprehensive list of criteria that does not necessarily reflect the top priorities of farmers. Codes, furthermore, tend to address a rather generic level for making them applicable worldwide. These aspects together are not helping farmers to develop ownership in the codes, largely limiting their implementation. Therefore, modifying the focus of codes could significantly improve a widespread application.

First of all the code will have to be meaningful to farmers and benefits of suggested improvements have to become obvious. Second, codes should be translated into local conditions also identifying locally applicable indicators and standard compliant practices. Third, farmers should play an active role in such processes where existing standards should ideally be transferred in a participatory process into a pragmatic code of conduct of e.g. a farmer organization. Fourth, criteria guiding farmers on their way of improving their performance and becoming sustainable should be thoroughly introduced into standards and such codes of conduct. Fifthly, the process should be undergone by involving relevant local stakeholders such as government authorities, NGOs, donors and industry representatives. Sixthly, it should be farmer driven but facilitated by skilled partners.

In all cases, benefits from the farmer perspective have to be sufficiently high to outweigh the costs associated with introducing new practices where not only price but also the reduction of costs due to gains in the efficiency of operations as well as economies of scale and joint action with other farmers in the commercialization of products are important components contributing to increase attractiveness of the farming system. In addition, the concept of sustainable coffee production also facilitates improvements on the environmental and social side which are not directly related to raising economic performance but would definitely contribute to improve the overall situation and livelihood of farmers and their communities. If applied throughout regions sustainable coffee production, furthermore, can significantly contribute to protect natural resources where an adequate remuneration of such environmental services could further raise farmer benefit and thus stimulate its widespread application.

It is crucial for the producers to understand that commercial buyers/exporters will respond favorably to buying from them when they are organized into a well-functioning system that reduces the company's transaction costs and assures a sufficient and dependable supply of quality products. This know-how coupled with the technology transfer leads to increased productivity, enhanced quality and a well functioning marketing system - components which will ultimately increase the farmers' overall income from coffee as well as from other produce, such as crops that the coffee is intercropped with, other cash crops or wood and timber from shade trees. Furthermore, smallholder farmers also profit from non-monetary benefits, such as secured natural resources as the basis of their existence, healthier living conditions, improved access to potable water and health care facilities, better education and improved working conditions.

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APPENDIX 3: CALCULATION OF COMPLIANCE COSTS

Our calculation of the costs of compliance with the “Core Criteria” were based on directly measurable investment and management costs. The tables below do NOT account for: 1. Certification costs or 2. Management costs associated with internal control. Similarly, the cost tables do not account for potential benefits associated with Core Criteria compliance. Finally, the actual costs associated with one or another farm will depend upon their current state of practices.

The following tables document the basis for our cost calculations based on the actions required in the respective regions.

BRAZIL: ESPIRITU SANTO

The costs in the Table 1 below have been calculated on the basis of the more detailed accounting in Table 2 adjusted for a farm group size of 2000 farmers.

TABLE 1: BRAZIL ADJUSTED COSTS

Column1	Column2	Column3	Column4	Column5	Column6	Column7
Adjusted Costs--BRAZIL: Espiritu Santo						
10 ha farm size, coffee (Arabica), yield 1,200 kg/ha green coffee, member of an association (informal organization; no commercial operations), family and hired labour, family size 5 persons						
Depreciation over 10 years						
ITEM (USD/farm)	Maintenance Costs	Capital Investment Costs	Depreciation	Opportunity Cost	Training Cost (200)	Training Cost (2000)

Occupational Health Courses					20.25	2.025
Adult literacy					60.75	6.075
Water analysis	45				0	0
Market info courses and material					9.75	0.975
Shade/tree planting		220	22	1800	0	0
Signs, surveillance		17	1.7		0	0
Agri Training					81	8.1
Broca Traps	85				0	0
Protective Clothing	45				0	0
Storage for Agrochem.		70	7		0	0
Reduced harvest due to buffer				360	0	0
Waste water management		108	11		0	0
Waste management					20.25	2.025
Management Plan and Handbook					69.75	6.975
Product Quality					20.25	2.025
Data recording & analysis tools					9.75	0.975
Total Costs	175	415	41.7	2160	291.75	29.175

TABLE 2: ESPIRITU SANTO—UNADJUSTED DETAIL

Social Criteria			
Criterion	Activity	Responsible Actor	Costs

1. Freedom of Association and Collective Bargaining	Espirito Santo, Arabica and Robusta <ul style="list-style-type: none"> No action needed. 		No costs.
2. Discrimination	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> No action needed. 		No costs.
3. No Child Labour	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> Sensitization of farmers/parents on risky activities which should not be done by children. 	Farmers associations	No costs. Registration and regular visits as part of the association's activities.
4. No forced labor	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> No action needed. 		No costs.
5. Written Contracts	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> No action needed. 		No costs.
6. Working Hours	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> No action needed. 		No costs.
7. Occupational Health and Safety Conditions	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> Action against unhealthy work conditions regarding chemical use is needed (further details 	Farmers associations, Farmers	Training courses with BR\$ 60 per person including travel, meal allowances, trainer, location etc.; with an average participation of 25 persons courses cost about BR\$ 1,500 (USD 675)

	<p>criteria 13 &14).</p> <ul style="list-style-type: none"> ▪ Trainings on basic hygiene (and HIV/AIDS) shall be conducted. ▪ A health policy can be implemented on cooperative level including a supporting/insuring systems for members in case of sickness. ▪ Conduct analysis of drinking water quality 		<p>= USD 27 per farmer and year.</p> <p>Water analysis cost about BR\$ 100 = USD 45 per farmer and year.</p>
8. Living conditions	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ No action needed 		No costs.
9. Adult literacy is promoted.	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Educational programs for elderly people. ▪ Higher education shall be promoted among farmers. ▪ Trainings on basic accounting are needed (see criterion 25) 	Farmers associations	Courses with an average cost of USD 27 per farmer; 3 courses per year = USD 81 per farmer and year.
Environmental Criteria			
Criterion	Activity	Responsible Actor	Costs

10. Diversified shade	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Reduction of productive area. ▪ Planting of shade trees. ▪ Further investigation of the practice of creating compensation zones to determine the full economic implications of such practices (in particular, on general well being). External support is needed. 	<p>Farmers, Farmers associations</p>	<p>Coffee fields would have to be reduced by about 10%. An average smallholder farm with about 10 ha of coffee would have to sacrifice 1 ha of its coffee area. With an average annual production of 20 bags of green coffee and an average price of BR\$ 200 (USD 90) per bag at farm gate costs would amount to BR\$ 4,000 = USD 1,800 per farmer and year.</p> <p>In addition about BR\$ 500 = USD 220 per farmer would be required for the production, transport and planting of shade tree seedlings for 1 ha.</p>
11. Conservation of Wildlife and protection of endangered species	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Establish sign posts and surveillance. 	<p>Farmers associations.</p>	<p>Legislation is requesting the conservation of wildlife and prohibits hunting outside specified areas; farmers generally have ecological compensation zones and are well aware of wildlife conditions on their properties; for establishment of signposts about USD 44 and surveillance USD 390 are required per farmer association = USD 17 per farmer and year.</p>
12. Use of agrochemicals	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Training on record keeping of the use of agrochemicals is needed. ▪ Training/ promotion of appropriate IPM is needed. ▪ Training/ information on banned substances is needed. 	<p>Extension service, Farmers association, Farmers</p>	<p>4 Courses with an average cost of USD 27 per farmer = USD 108 per farmer and year.</p>

<p>13. Application of agrochemicals</p>	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Sensitization on dangers of agrochemicals is needed. ▪ Training on appropriate application of agrochemicals is needed. ▪ Access to appropriate protection equipment has to be improved (e.g. through renting/ selling it at the farmer organization) ▪ Promotion of the use of broca traps. 	<p>Farmers association, Farmers</p>	<p>For protective clothing about USD 45 would be required per farmer and year.</p> <p>16 traps per ha would cost about USD 17; for an average farm with 10 ha of coffee about USD 170 per would be required. Traps might be used for two seasons on average = USD 85 per farmer and year.</p>
<p>14. Storage of Agrochemicals</p>	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Promotion of just in time logistics and improvement of the accessibility of agrochemicals. ▪ Introducing techniques to build storage facilities with local materials. ▪ Sensitization of the dangers of inappropriate storage of agrochemicals. 	<p>Farmers</p>	<p>USD 100 per farmer for upgrading of existing facilities including installation of extinguisher and absorbent materials in case of spills, make use of metal shelves and signaling.</p>

20. Waste management	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Implementation of a recycling program / compost system. ▪ Sensitization on separate collection of toxic waste. 	Farmers associations	Courses with an average cost of USD 27 per farmer.
21. Energy use	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ No action needed. 		No costs.
Economic Criteria			
Criterion	Activity	Responsible Actor	Costs
22. Management Plan to comply with sustainable standards	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> ▪ Training on drafting basic management plans. ▪ Sensitization on the advantages of a written documentation system and a management plan. 	External Consultant, Farmers associations	<p>Implementation of a plan and records of activities.</p> <p>Design and drafting of a business plan by an experienced international consultant (USD 10.000 including expert fee and travel costs) = USD 66 per farmer.</p> <p>Three courses are suggested to train farmers and farmer associations on management aspects around the implementation of sustainable</p>

			practices, business planning and basic accounting; courses would have an average cost of USD 13 per farmer .
23. Market Information	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> Farmer organisation should implement an information system. Local, national and international coffee prices should be made accessible to all farmers. 	Farmers associations, Farmers	<p>Two persons trained per farmer organisation; training to take about 3 days costing BR\$ 30 per day per participant; additionally BR\$ 750 per day as fee for the trainer including travel, food allowance and accommodation; including preparation for the trainer total cost for a 3 day seminar would be about BR\$ 3,750 for the trainer (5 days) and BR\$ 900 for 10 participants; BR\$ 4,650 = USD 2,095.</p> <p>Additional costs arise for the acquisition, processing and distribution of market information where one man-day per month would be calculated per farmer association including communication and material, i.e. BR\$ 30 (USD 13) per day = USD 13 per farmer and year.</p>
24. Product quality	<p>Espirito Santo, Arabica and Robusta:</p> <ul style="list-style-type: none"> Sensitization on quality issues and training on quality improvement (e.g. picking). 	Farmers associations, farmers	<p>Training in quality aspects; 3 courses (production and harvesting; processing; quality control) should be assumed per farmer organisation each costing about BR\$ 1,500 (USD 675) for about 25 participants = USD 27 per farmer.</p>

25. Economic sustainability	Espirito Santo, Arabica and Robusta: <ul style="list-style-type: none"> ▪ Introduce analysis of costs and profits at farmer level.. ▪ Trainings on basic accountability have to be conducted, to enable farmers to know and manage their economic information. ▪ Diversification can be promoted, since there is very good production potential for e.g. kaki fruit, bananas, oranges and tangerines. ▪ Introduce a credit and savings system for the farmers (e.g. in cooperation with a microfinance institute). 		Cost-benefit analysis about USD 13,000 and follow up mission about USD 10,000 Software package about USD 1,100 Data collection and processing USD 800 per year = USD 13 per farmer and year. No further costs for trainings (included in the courses on business planning and basic accounting for criterion 22)
Total Cost per Farmer (without counting for opportunity costs, technical assistance in terms of consulting missions for the implementation of a traceability system, design of a format for business plans as well as the cost-benefit analysis and corresponding software package)		USD 316 per year of which USD 273 constitute recurrent costs and USD 43 as annual depreciation of investments (depreciation over 10 years)	
Opportunity Costs per Farmer		USD 3,600 opportunity costs of establishing shade trees and buffer zones	

Remark: In view of the diversity of farmers and farm sizes in the project area costs were calculated for an average farmer with a coffee area of 10 ha producing about 20 bags of 60 kg green coffee per ha. In total about USD 316 would arise as additional costs per year for enabling the farmer to comply with sustainable practices. This amount could be reduced if the number of farmers in the target group of

the project and thus efficiency in providing certain training courses could be increased. Considering also the opportunity costs of farmers for establishing diversified shade in coffee and buffer zones along waterways the amount would increase to USD 3,916; opportunity costs in addition would be fluctuating with the movement of market prices.

Estimates of Other Additional Costs:

In a certification system compliance with standards also needs to be proven regularly. Furthermore a traceability system needs to be implemented providing evidence of a clear separation of certified coffee from other lots and tracking back the coffee to field level. Such system for Internal Control and Commercial Documentation would be hosted at the level of the farmer organization.

An expert would have to be recruited for developing and setting up the system; assuming a daily rate of BR\$ 1,500 (USD 665) for the expert including travel, daily allowances and accommodation total cost would amount to BR\$ 22,500 (USD 10,000) for a 15 day's mission. For establishing and implementing the system 20 man-days of local expertise are calculated; assuming a daily rate of BR\$ 650 (USD 300) for the expert including travel, daily allowances and accommodation total cost would amount to BR\$ 13,000 (USD 6,000) for a 20 day's mission.

Data collection, evaluation and maintenance of the system are assumed to require 2 man-days per month per farmer organization, i.e. BR\$ 1,440 (USD 640) per year without considering hard- and software for running the system.

EL SALVADOR: CUSCATLAN, ABOQUERON

The costs in the Table 3 below have been calculated on the basis of the more detailed accounting in Table 4Table 2 adjusted for a farm group size of 2000 farmers.

TABLE 3: EL SALVADOR—ADJUSTED COSTS

Column1	Column2	Column3	Column4	Column5	Column6	Column7
Adjusted Costs: El Salvador: Cuscatlan, Aboqueron						
1.75 ha farm size, coffee (Arabica), yield 690 kg/ha green coffee, member of cooperative (formal organization for coffee marketing, input supply and provision of credit), chiefly family labour, family size 8 persons, member in a project with a target group of 200 farmers						
Depreciation over 10 years						
ITEM (USD/farm)	Maintenance Costs	Capital Investment Costs	Depreciation	Opportunity Cost	Training Costs (200)	Training Cost (2000)
Occupational Health Courses					4	0.4
Installation of toilets, ...		150	15			0
Market info courses					3	0.3
Tree planting		2	0.2			0
Signs, etc.		10	1			0
Tree inventory					8	0.8
Water harvesting systems		30	3			0
Training on written contracts					4	0.4
Agri Training					114	11.4
Protective Clothing	46					0
Installation for washing		60	6			0
Broca Traps	60					0
Storage for Agrochem.		100	10			0

Soil Samples	20					0
Reduced harvest due to buffer				45		0
Compost establishment		20	2			0
Management Plan					60	6
Management Handbook					5	0.5
Data recording & analysis tools					70	7
Total Cost	126	372	37.2	45	268	26.8

TABLE 4: EL SALVADOR: UNADJUSTED DETAIL

Social Criteria			
Criterion	Activity	Responsible Actor	Costs
1. Freedom of Association and Collective Bargaining	Cuscatlan: <ul style="list-style-type: none"> ▪ Sensitization on advantages of group formation is needed. Acoboqueron: <ul style="list-style-type: none"> ▪ No action needed. 	Farmers associations	No costs

2. Discrimination	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ▪ No action needed. 		No costs
3. No Child Labour	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ▪ Sensitization of farmers/ parents on risky activities which should not be done by children. 	Farmers associations	No costs
4. No forced labor	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ▪ No action needed. 		No costs
5. Written Contracts	Cuscatlan and Acobequeron: <ul style="list-style-type: none"> ▪ Sensitization on the importance of written contracts. ▪ Training on organizational management (including the introduction of written contracts like the "working cards" in Brazil or a Code of Conduct on farmer organization level which should contain topics such as minimum wages, working hour regulations and most importantly, a procedure for dispute mediation) 	Farmer associations	Courses will be held in the Cooperatives and the only money paid is for material, lunch and trainer (e.g. of a local NGO) incl. allowances. Considering an average participation of 30 farmers/ workshop, 7 workshops have to be held, each mount to an average cost 120 USD, i.e. 840 USD in total or approx. USD 4 per farmer/year.
6. Working Hours	Cuscatlan and Acobequeron: <ul style="list-style-type: none"> ○ Sensitization on the issue of documentation is needed. ○ Training on organizational management (including the introduction of a working hour documentation system for farmers and workers). 	Farmers associations	No further costs (included in costs for criterion 5)

<p>7. Occupational Health and Safety Conditions</p>	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Action against unhealthy work conditions regarding chemical use is needed (further details criteria 13 &14). ○ Trainings on basic hygiene (and HIV/AIDS) shall be conducted. ○ A health policy can be implemented on cooperative level including a supporting/ insuring systems for members in case of sickness. ○ Better access to health services and water sources shall be implemented with support of local or national government or donors. ○ Access to potable water has to be improved (e.g. through rain-water-harvest systems or water-purification techniques). 	<p>Farmer associations</p>	<p>Courses will be held in the Cooperatives and the only money paid is for material, lunch and trainer of a local hospital incl. allowances. Considering an average participation of 30 farmers/workshop, 7 workshops have to be held, each mount to an average cost 120 USD, i.e. 840 USD in total or approx. USD 4 per farmer/year.</p> <p>Implementation of water harvesting system: costs per unit: 1.000 USD, number needed: 6, leading to cost of 6.000USD or 30USD per farmer</p>
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8. Living conditions	<p>Cuscatlan and Acobueron:</p> <ul style="list-style-type: none"> ○ Improve sanitation conditions <p>Cuscatlan:</p> <ul style="list-style-type: none"> ○ External support in cases of food shortage would be needed. 	Farmers	Installation of toilets and washing facilities on farms for approximately 100 farmers, leading to a cost of 15.000 USD or USD 150 per farmer.
9. Adult literacy is promoted.	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Trainings on basic accounting are needed (see criterion 25) 	Farmers associations	No further costs (included in costs for criterion 25)
Environmental Criteria			
Criterion	Activity	Responsible Actor	Costs
10. Diversified shade	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Increase the number of native trees among the shade trees. ○ Further training on shade tree pruning as part of ongoing technical assistance. <p>Cuscatlan:</p> <ul style="list-style-type: none"> ○ Reduce the number of shade trees. 	Farmers and Farmers associations	Costs for replanting of local shade species can be estimated at 0.40 USD/tree . Farmers in the project area have approximately 1 ha of coffee (200 ha of coffee for the entire project) and need to replant on average 10 trees/ha. The costs of trees is approximately 0.40 cts , mounting to a total of 800 USD for the entire project or 4 USD/farmer

11. Conservation of Wildlife and protection of endangered species	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Putting up signs. ○ Maintenance of existing protections standards and the Internal Control System. ○ Inventory of plants and trees. 	Farmers associations	<p>Signs and regulations around need to be set up. It is estimated that the establishment of sign posts as well as the maintenance cost will be 1.000 USD for each cooperative (in total 2.000 USD) or 10 USD/farmer.</p> <p>Most of the cost involved can be expected for maintaining the system, especially in maintaining the Internal Control System as well as update information. Additional costs arise for the plant and tree inventory, which is estimated at 8 USD/farmer/year for an external expert.</p>
12. Use of agrochemicals	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Training on record keeping of the use of agrochemicals is needed. ○ Training/ promotion of appropriate IPM is needed. ○ Training/ information on banned substances is needed. 	Extension service; farmer associations	<p>12 one day courses/year, covering all agronomic issues. Such work needs a full time agronomist salary plus stationary & transport. Such position would cost on a monthly basis 1.900,- USD (22.800 USD/year) or 114 USD /farmer/year</p>
13. Application of agrochemicals	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Sensitization on dangers of agrochemicals is needed. ○ Training on appropriate application of agrochemicals is needed. 	Farmers	<p>Costs for trainings are covered by costs for criterion 12.</p> <p>For protective clothing about USD</p>

16. The use of organic matter is promoted	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ○ Promotion of the use of organic matter (e.g. redistribution and reuse of the pulp). 	Farmers and Farmers associations	No further costs, (included in costs for criterion 15)
17. + 18. Conservation of water resources and buffer zones at natural waterways	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ○ Sensitization on the importance of keeping buffer zones clean is needed. ○ Alternative waste disposal opportunities shall be promoted. 	Farmers associations	Costs involved in reducing coffee areas at waterways can only be estimated. Only few farms are close to waterways, therefore the average reduction of production can be estimated at 0.5 bags. At a farmgate price of 90 USD/bag, this would mean USD 45/farmer/year
19. Waste water management	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ○ Promotion of low-tech household sewage treatment systems inclusive training. 	Farmers Associations	No costs
20. Waste management	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ○ Implementation of a recycling program/ compost system. ○ Separate collection of toxic waste. ○ Sensitization on visual cleanliness is needed. 	Farmers Associations	No further costs for training on compost systems (included in costs for criterion 15). Establishment of compost pit USD 20/farmer , including material costs and labour.
21. Energy use	Cuscatlan and Acoboqueron: <ul style="list-style-type: none"> ▪ No action needed. 		No costs

Economic Criteria			
Criterion	Activity	Responsible Actor	Costs
22. Management Plan to comply with sustainable standards	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Implementation of a management plan and records of activities. Special focus needed on debt restructuring. ○ Training on drafting basic management plans. ○ Sensitization on the advantages of a written documentation system and a management plan. ○ Elaboration of management handbooks for farm management. 	<p>Intl. Consultant, Farmer associations, farmers, exporters, banks</p>	<p>Study, audit and trainings needs to be conducted by an experienced consultant. Entire component approx. 12.000 USD including fee, travel and allowances, cost approx. 60 USD/farmer/year.</p> <p>For the management handbook a total cost of 5 USD/farm/year will be needed (for 200 farmers this is 1.000,-- USD, costs stem from local consulting fee (10 days * 100 USD) plus cost of material (200 USD in total)).</p>
23. Market	Cuscatlan and Acoboqueron:	Farmer associations in	The permanent provision and distribution of information coupled with training in how to

<p>Information</p>	<ul style="list-style-type: none"> ○ Farmer organisation should implement an information system. ○ Local, national and international coffee prices should be made accessible to all farmers. 	<p>coordination with national coffee body and private exporters</p>	<p>use/analyze the information. Ideally, a national coffee institute should host such a service. A yearly fee of 300 USD/cooperative should cover expenses of such service, including a training course to cooperatives by the national coffee association. 2 cooperatives in the project should benefit, i.e. a fee of 600 USD would be payable. This would translate into 3 USD/year/farmer.</p>
<p>24. Product quality</p>	<p>Cuscatlan:</p> <ul style="list-style-type: none"> ○ Sensitization on quality issues and training on quality improvement (e.g. shade management). <p>Acoboqueron:</p> <ul style="list-style-type: none"> ○ Sensitization on quality issues and training on quality improvement (e.g. shade management). 	<p>Farmers associations</p>	<p>No further costs (quality issues are included in all other trainings)</p>
<p>25. Economic sustainability</p>	<p>Cuscatlan and Acoboqueron:</p> <ul style="list-style-type: none"> ○ Introduce farm data recording and analysis tools. ○ Trainings on basic accountability have to be conducted, to enable farmers to know and manage their economic information. ○ Introduce a saving system to the farmers that they can get easier access to credits if coffee prices are low. ○ Training on credit and savings for selected cooperative members shall be conducted to assure the accountability of 	<p>Farmers Associations</p>	<p>Production cost analysis about USD 4.000, software package and training about USD 4.000</p> <p>Data collection and processing USD 6.000 per</p>

	the Cooperative.		
Total Cost per Farmer	(without counting for investments and opportunity costs, technical assistance in terms of consulting missions for the implementation of a traceability system and for establishing a management handbook, design of a format for business plans as well as the cost-benefit analysis and corresponding software package)	USD 163 per year of which USD 126 constitute recurrent costs and USD 37 as annual depreciation of investments (depreciation over 10 years). Technical Assistance amounts to an amount of 268 USD/farmer yielding total additional cost per year of about 327 USD.	
	Opportunity Costs per Farmer	USD 45 USD opportunity costs lost production area in buffer zones	

Remark: Farmers and farm sizes in the project area are relatively homogeneous. With around 1ha/farm producing about 700 kg green coffee per ha in total about USD 327 would arise as additional costs per year for enabling the farmer to comply with sustainable practices, especially in terms of external experts. This amount could be reduced if the number of farmers in the target group of the project and thus efficiency in providing certain training courses could be increased. The opportunity costs of farmers for establishing diversified shade is relatively little as production is traditionally done under shade. Only buffer zones need to establish in a few cases, leading to a cost of 45 USD per farmer. Opportunity costs in addition would be fluctuating with the movement of market prices.

Costs for certification systems are included in the expert fees. Such a system includes a traceability system, embedded in an Internal Control System.

For several trainings, it is necessary to recruit experts. Depending on the tasks to be carried out, local or international experts can be recruited. Cost details for local and international experts can be extracted from the above table.

UGANDA: BIGASA

The costs in Table 5 below have been calculated on the basis of the more detailed accounting in Table 6 Table 2 adjusted for a farm group size of 2000 farmers.

TABLE 5: UGANDA—BIGASA: ADJUSTED COSTS

Column1	Column2	Column3	Column4	Column5	Column6	Column7
UGANDA: Bigasa						
Figures are based on an average farmer having 1 acre (0,35 ha) of land with about 300 coffee trees producing about 150 kg of green coffee. Coffee trees are intercropped with Matooke and other food crops. When allocating costs for field staff and of special trainings (community development) the assumption is that they are split between 2,400 farmers						
My Recalculated version						
ITEM (USD/farm)	Maintenance Costs	Capital Investment Costs	Depreciation	Opportunity Cost	Training Cost (200)	Training Cost (2000)
Agricultural inputs			0		0	0
Mulching material	0		0		0	0
Manure	0		0		0	0

Chemicals for weeding	0		0		0	0
Shade trees (10)		2.2	0.22		0	0
Labour for main field activities			0		0	0
Mulching	16.4		0		0	0
Manuring	16.4		0		0	0
Compost Pit establishment		19.2	1.92		0	0
Important tools			0		0	0
Hygiene and sanitation / Environment			0		0	0
Construction of a pit latrine		170	17		0	0
Construction of of a garbage pit		8.2	0.82		0	0
Training on waste management		0.1	0.01		0	0
			0		0	0
Post harvest			0		0	0
Tarpaulin		16.4	1.64		0	0
Pallet for kiboko storage		22	2.2		0	0
Poly bags for kiboko storage		1.6	0.16		0	0
Record keeping			0		0	0
Book		1.6	0.16		0	0
Work safety and Chemical safety			0		0	0
First aid training		1.8	0.18		0	0
Chemical safety training		2	0.2		0	0
Storage for Agrochem.		4.4	0.44		0	0
Protective Clothing (full set)	35.7				0	0
Safe disposal of empty chemical bottles		0.4	0.04		0	0
Social Issues			0		0	0

FAL Training		2.5	0.25		0	0
Community development training		2.7	0.27		0	0
Marketing of water purification products	20		0		0	0
Field staff salaries			0		0	0
8 Site Coordinators			0		15.6	1.56
1 Field Officer			0		19.2	1.92
2 Agronomists			0		39.6	3.96
1 Producer Organization Trainer			0		30	3
Field Officer Expenses			0		19.2	1.92
Agronomist Transport			0		21.6	2.16
Training Costs + Material			0		0	0
Site Coordinator training expenses			0		21.6	2.16
Agronomist training			0		19.2	1.92
POT training expenses			0		12	1.2
Training on marketing			0		18	1.8
Sustainability manual		3.2	0.32		0	0
Total	88.5	258.3	25.83	0	216	21.6

TABLE 6: UGANDA: UNADJUSTED DETAIL

Social Criteria

Criterion	Activity	Responsible Actor	Costs
1. Freedom of Association and Collective Bargaining	<ul style="list-style-type: none"> ▪ Set up of a complaint record for workers at level of Depot Committee. ▪ Inform workers about their rights through Lead Farmer. 	<p>APEP/Ibero</p> <p>APEP</p>	<p>Covered by Producer Organization Trainer (POT), Field Officer (FO) and Site Coordinator (SC) salaries:</p> <p>1 POT: annual costs per farmer = 4.600 Ushs</p> <p>1 FO: annual costs per farmer = 3.000 Ushs</p> <p>8 SCs: annual costs per farmer = 2.400 Ushs</p> <p>FO expenses (office rent, transport & stationary): annual costs per farmer = 2.900 Ushs</p> <p>SC training expense (Lead farmers + Contact farmers trained 2x per month): annual costs per farmer = 3.360 Ushs</p> <p>POT training expenses (112 Producer Organizations + 8 Depot Committees - each PO trained 6 times/year, each DC 12 times/year): annual costs per farmer = 1.920 Ushs</p>
2. Discrimination	<ul style="list-style-type: none"> ○ No action needed. 		<p>No costs.</p>
3. No Child	<ul style="list-style-type: none"> ○ Sensitization of farmers/ parents on risky activities 	<p>Farmers associations,</p>	<p>No costs.</p>

Labour	which should not be done by children.	Farmers	
4. No forced labor	<ul style="list-style-type: none"> ○ Discontinue the practice of employing prisoners. ○ Sensitization on the issue of forced labour is needed and a common commitment against forced labour shall be signed by the farmers. ○ Farmer still using prisoners to work for them have to be excluded. 	Farmers	No further costs (included in trainings for criteria 1)
5. Written Contracts	<ul style="list-style-type: none"> ▪ Sensitization on the importance of written contracts. ▪ Introducing a Code of Conduct on farmer organization (DC) level which should contain topics such as minimum wages, working hour regulations and most importantly, a procedure for dispute mediation. ▪ Provide a list of permanent employees on all farms at the Producer Organisation or Depot Committee level 	APEP, Farmer associations	Part of POTs work/see POT salaries
6. Working Hours	<ul style="list-style-type: none"> ○ Sensitization on the issue of documentation is needed. 	Labour Office, Farmer	No costs.

	<ul style="list-style-type: none"> ○ Introduction of a working hour documentation system for farmers and workers. 	associations	
<p>7. Occupational Health and Safety Conditions</p>	<ul style="list-style-type: none"> ▪ Action against unhealthy work conditions regarding chemical use is needed (further details criteria 13 &14). ○ Access to potable water has to be improved (e.g. through water-purification techniques). ○ Trainings on basic hygiene, health and sanitation issues (and HIV/AIDS) shall be conducted, including Community development ▪ Conduct a First Aid Training 	<p>PSI (local NGO)</p> <p>farmers</p> <p>Bigasa Health Centre,</p> <p>farmers</p>	<p>Costs included in criteria 13 and 14</p> <p>Purchase of purification products; for 5 liters purified water per day/family: annual cost per farmer = 36.000 Ushs</p> <p>Cost per course = 5.000 Ushs (1.000 Ushs = annual cost per farmer based on one person trained per village – new course every 5 years)</p> <p>Cost for one training course = 3.200 Ushs, Investment over 5 years: annual cost per farmer = 640 Ushs (cost per farmer based on one person trained per village – new course every 5 years)</p>

		Red Cross	
8. Living conditions	<ul style="list-style-type: none"> ○ Need for the collection of information on correct pit latrine maintenance and downfalls of the current system (i.e. from organizations such as WHO) ○ External support to improve the sanitation conditions would be needed. 	<p>Awareness raising by Bigasa Health Centre</p> <p>Farmers</p>	<p>No further costs (included in criterion 7)</p> <p>Construction of a pit latrine = 310.000 Ushs, Investment over 10 years: annual cost per farmer = 31.000 Ushs</p>
9. Adult literacy is promoted.	<ul style="list-style-type: none"> ○ Primary education has to be promoted among workers. ○ Conduct Literacy courses, which should address 	<p>FAL (Functional Adult Literacy)</p>	<p>Cost per course = 4.500 Ushs (900 Ushs cost per farmer based on one person trained per village – new course every 5 years)</p>

	<ul style="list-style-type: none"> especially women.. o Trainings on basic accounting are needed. 		
Environmental Criteria			
Criterion	Activity	Responsible Actor	Costs
10. Diversified shade	<ul style="list-style-type: none"> o Plant shade trees/ support the planting of shade trees. o Sensitization on the importance of an adequate number of shade trees for a better yield. 	<p>Farmers with assistance of project staff</p> <p>Project staff (APEP)</p>	<p>10 trees per shamba = 4.000 Ushs, Investment over 10 years: annual cost per farmer = 400 Ushs</p> <p>no extra costs</p>
11. Conservation of Wildlife and protection of endangered species	<ul style="list-style-type: none"> o No action needed 		No costs.

<p>12. Use of agrochemicals</p>	<ul style="list-style-type: none"> ○ Training on record keeping of the use of agrochemicals is needed. ○ Training/ promotion of appropriate IPM is needed. ○ Training/ information on banned substances is needed. 	<p>APEP, Ibero</p>	<p>Covered by POT's, FO's and Agronomists' tasks and salaries:</p> <p>2 Agronomists: annual cost per farmer = 6.000 Ushs</p> <p>Agronomist training (each farmer visited twice per year): annual cost per farmer = 3.000 Ushs</p> <p>Agronomist transport = annual cost per farmer = 3.300 Ushs</p>
<p>13. Application of agrochemicals</p>	<ul style="list-style-type: none"> ○ Sensitization on dangers of agrochemicals is needed. ○ Training on appropriate application of agrochemicals is needed. ○ Access to appropriate protection equipment has to be improved (e.g. through renting/ selling it at the farmer organization) 	<p>APEP, Ibero</p>	<p>Chemical safety training = 3.600 Ushs, Investment over 5 years: annual cost per farmer = 720 Ushs (cost per farmer based on one person trained per village – new course every 5 years)</p> <p>Protective clothing (set) = 65.000 Ushs, Investment over 5 years: annual cost per farmer = 13.000 Ushs (could be shared among several farmers)</p>
<p>14. Storage of Agrochemicals</p>	<ul style="list-style-type: none"> ○ Promotion of just in time logistics and improvement of the accessibility of agrochemicals. ○ Sensitization of the dangers of impropriate storage of agrochemicals. ○ Establishment of Storage 	<p>APEP, Ibero, Farmers associations</p>	

	for Agrochemicals (e.g. introducing techniques to build storage facilities with local materials).	Farmers	Chemical Store = 8.000 Ushs , Investment over 10 years: annual cost per farmer = 800 Ushs (taken that 100 farmers share the cost of one chemical store)
15. Management of soil fertility	<ul style="list-style-type: none"> ○ Training on sustainable soil management is needed. 	Ibero, APEP	No further costs, covered by FO's, SC's and Agriculturalists' salaries
16. The use of organic matter is promoted	<ul style="list-style-type: none"> ○ Promotion of the use of organic matter besides pulp (e.g. mulching). ○ Proper mulching, pruning and weeding is needed. 	<p>Ibero, APEP</p> <p>Farmers</p>	<p>No further costs, covered by FO's, SC's and Agriculturalists' salaries</p> <p>Mulching material: annual cost per farmer = 100.000 Ushs</p> <p>Manure: annual cost per farmer = 75.000 Ushs</p> <p>Chemicals for weeding: annual cost per farmer = 35.000 Ushs</p> <p>Purchase of knapsack sprayer: 100.000 Ushs, Investment over 5 years: annual cost per farmer = 20.000 Ushs (could be shared among several farmers)</p> <p>Labour cost</p> <p>for mulching: annual cost per farmer = 30.000 Ushs</p>

			for manuring: annual cost per farmer = 30.000 Ushs <i>Weeding would cost 50.000 if done by hand instead of chemically</i>
17. + 18. Conservation of water resources and buffer zones at natural waterways	○ No action needed		No costs.
19. Waste water management	○ Promotion of low-tech household sewage treatment systems inclusive training.	Ibero, APEP, Farmers	No further costs, covered by FO's, SC's and Agriculturalists' salaries
20. Waste management	○ Separate collection of toxic waste. ○ Implementation of a recycling program/ compost system. ○ Sensitization on visual cleanliness is needed.	Farmers Farmers	Safe disposal of empty chemical bottles: 800 Ushs , Investment over 10 years: annual cost per farmer = 80 Ushs Establishing compost pit = 35.000 Ushs , Investment over 5 years: annual cost per farmer = 7.000 Ushs Training course = 200 Ushs , Investment over 5 years: annual cost per farmer = 40 Ushs (training to be repeated every 5 years)

		Ibero, APEP	
21. Energy use	○ No action needed.		No costs.
Economic Criteria			
Criterion	Activity	Responsible Actor	Costs
22. Management Plan to comply with sustainable standards	<ul style="list-style-type: none"> ○ Training on drafting basic management plans. ○ Sensitization on the advantages of a written documentation system and a management plan. 	<p>Ibero, APEP</p> <p>Ibero</p>	<p>No further costs, covered by FO's, SC's and Agriculturalists' salaries</p> <p>Development and printing of a Sustainability Manual = 5.800 Ushs, Investment over 10 years: annual cost per farmer = 580 Ushs</p>
23. Market Information	<ul style="list-style-type: none"> ○ Farmer organisation should implement an information system. ○ Local, national and international coffee prices should be made accessible to all farmers. 	Ibero, APEP, Farmers associations	No further costs, covered by FO's, SC's and Agriculturalists' salaries

<p>24. Product quality</p>	<ul style="list-style-type: none"> ○ Sensitization on quality issues and training on quality improvement (e.g. pruning). ○ Providing necessary equipment to improve the quality (e.g. tarpaulins for drying) 	<p>Ibero, APEP</p> <p>Ibero, APEP, Farmers</p>	<p>Covered by FO's and Agriculturalists' salaries</p> <p>Tarpaulin = 30.000 Ushs, Investment over 3 years: annual cost per farmer = 10.000 Ushs</p> <p>Pallet for kiboko storage = 40.000 Ushs, Investment over 10 years: annual cost per farmer = 4.000 Ushs</p> <p>Poly bags = 3.000 Ushs, Investment over 3 years: annual cost per farmer = 1.000 Ushs</p> <p>Pruning saws = 14.000 Ushs, Investment over 5 years: annual cost per farmer = 2.800 Ushs</p>
<p>25. Economic sustainability</p>	<ul style="list-style-type: none"> ○ Trainings on basic accountability have to be conducted, to enable farmers to know and manage their economic information. 	<p>Ibero</p> <p>Farmers</p>	<p>Training Costs: annual cost per farmer = 2.750 Ushs</p> <p>Purchase of a book for record keeping = 3.000 Ushs</p> <p>Investment over 2 years: annual cost per farmer = 1.500 Ushs</p> <p>No costs.</p>

	○ Introduce a credit and savings system for the farmers (e.g. in cooperation with a microfinance institute).	Farmers associations	
Annual Cost per farmer in Ushs		445.790	
Annual Cost per farmer in USD		243,-	

Assumptions:

1. It is assumed that farmers use chemicals even though most farmers do not (in which case all the costs linked to chemical usage can be neglected).
2. It is assumed that half of the required mulching material and manure are purchased and half originate from the farm itself.
3. It is assumed that farmers use labour for the main activities even though most farmers do the work themselves.
4. Farmers have to be trained on sustainable practices and hence the costs for the field officer and Site Coordinators.
5. There is a cost associated with all trainings to cover materials, tools, ect (Ushs 1.500 per trainee), which is included in the above calculation.
6. There are no ICS costs included in the above calculation.
7. Project management has not been included as we assume that the management is with the Field Officer.

It would be difficult for a farmer with an annual income of about 250 USD to finance 243 USD/year for implementing these sustainable practices. However, if productivity and quality increase as envisioned, farmers will increase their annual income substantially. On top of that farmers will benefit from the bulk marketing as well as from bulk input supply.

However, in order to calculate the annual cost of sustainability a lot of items in the cost analysis have been divided by the number of years of useful life. In reality a lot of these items will have to be paid all at once, such as the tarpaulin, the pit latrine, the knapsack sprayer or community development training. Since there are no financing or credit schemes available it would not be possible for farmers to pay for these investments and trainings over a period of time but they would have to be paid at once. Therefore, the initial payments for achieving sustainability will be even more difficult for smallholders to be made.

Remark:

In order to be compliant with a certification system, regular audits would have to be conducted. Furthermore a traceability system needs to be implemented providing evidence of a clear separation of certified coffee from other lots and tracking the coffee back to field level. Such system for Internal Control and Commercial Documentation can be hosted at the level of the farmer organization or at Export Company level.

For the implementation of a simple ICS, field staff would need to do the ground work, collect the data and ensure compliance with requirements. The minimum staff costs are already included above. Therefore one would be looking at the additional costs for an ICS. The minimum requirement for documentation would be farmer contracts, farmer entrance forms, growers list, and internal inspection forms. In addition, training reports are necessary since almost all of the certification programs require farmers to be trained and this training will have to be documented. For designing all the documentation and for maintaining and updating the growers list a computer is essential. A computer and printer cost USD 1.800. The costs for photocopying the documents are: 2400 contracts at USD 200, 2400 entrance forms at USD 400, 4800 internal inspection forms (2 internal inspections per year) at USD 1.500, Training Reports (12 trainings per group per year) at USD 150. The total additional cost for an ICS would come to about USD 3.210 which is about USD 1,4 per farmer or Ushs 2.570.

NB: The above assumes that no training/transport/food allowances are paid, that the ICS documents are designed in-house by the FO, that the growers list is updated in-house and that no external consultants are called in. It is also assumed that the Field Officer carries out all the training to the Lead Farmers and the Lead Farmers to the farmers in their Producer Groups.

External annual inspections for certification and certification costs amount to about 4.000 USD per year adding another Ushs 3,060 to farmers' annual costs. Provided that a functional and transparent Internal Control System is established samples can be kept small and inspections could thus be realized in a most efficient way. This truly would contribute to reduce corresponding costs and the amount charged to the farmer.

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