

ORIGIN ISSUE ASSESSMENT KENYA - COFFEE



Photo: Giuseppe Cipriani

Kenya mainly produces highly valued organic Arabica coffee (Muriithi, 2018). In Kenya, coffee is grown in 32 out of the 47 counties on an estimated 150,000 ha (KNBS, 2017; Othun et al., 2021), out of which 80% is occupied by smallholder farmers in cooperatives and the remaining by large scale plantations (Muriithi, 2018). A total of about 50,000 tons of coffee is produced annually (Kalro, 2021). 250,000 Kenyans are employed in the production of coffee (Kalro, 2021). Despite Kenyan coffee being praised for its quality, production has declined by around 50% over the past 25 years (FAO, 2018; Othun et al., 2021).

TOP ISSUES

The top issues identified are:

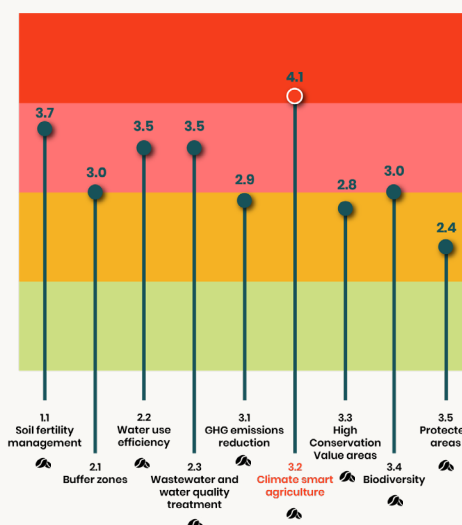
- **Integrated Pest Management (risk score 4.4/5)**
- **Climate Smart Agriculture (risk score 4.1/5)**
- **Gender equality (risk score 4.2/5)**

Changing rainfall patterns and higher temperatures alter the flowering pattern of coffee berries, which in turn lead to a higher incidence of pests and diseases. This has resulted in the over spraying of agrochemicals to control pests and diseases (**Integrated Pest Management**). Climate change negatively affects coffee farmers as they experience less frequent harvests due to adverse weather impacts. To date, many coffee smallholder farmers continue to follow environmentally harmful practices. There is major disparity between the goals Kenya desires to achieve in terms of climate-smart agriculture and their potential ability to achieve these goals (**Climate smart agriculture**). Meanwhile, the coffee sector and value chain in Kenya remains heavily male dominated with regards to income generation and land tenure. Despite the important type of work women carry out in the sector, they are not engaged in key decision-making, and they are disadvantaged in reaping the economic benefits of their work (**Gender equality**).

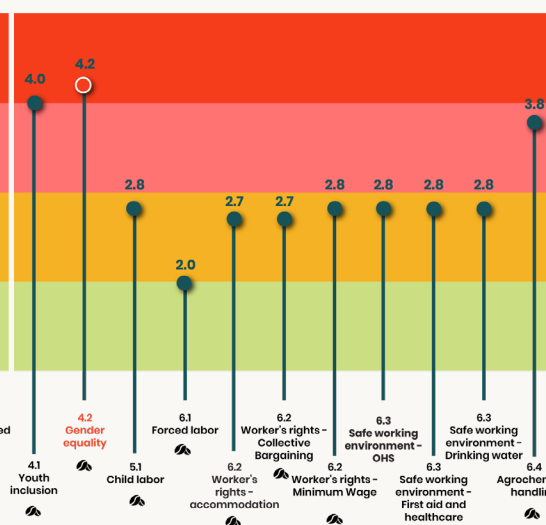
Further details per topic are provided in a separate annex.



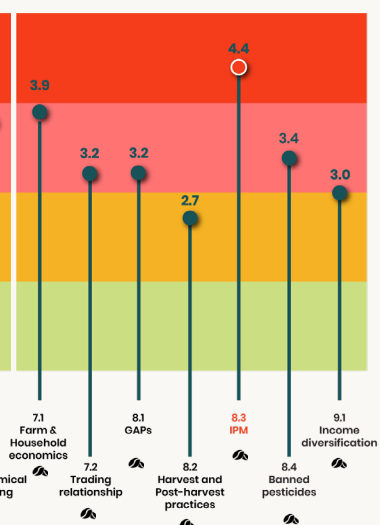
Sustainability of Land



Equality of People



Prosperity of Farmers



Range Probability of the issue's occurrence

4.1 - 5.0	High probability: Known to occur frequently
3.1 - 4.0	Medium-high probability: Known to occur
2.1 - 3.0	Medium-low probability: Could occur
1.0 - 2.0	Low probability: Not expected to occur

ORIGIN ISSUE ASSESSMENT METHOD SUMMARY

This Origin Issue Assessment (OIA) is compiled by the Rainforest Alliance as part of the JDE Common Grounds Initiative. The OIA is a desk-based 'early warning system' identifying potential issues related to coffee production in a country for each of the 23 JDE Common Grounds Responsible Sourcing principles. It focuses on the probability of occurrence, and less on the scale and severity of impacts. Three different data sources are used: i) country-specific law and legislation, (ii) recent evidence (media, reports, papers, UTZ audit results*), (iii) expert opinions survey**. The overall score is calculated based on these three types, however evidence is weighted higher (3x), than expert opinion (2x) and the law and legislation score (1x). The weighted scores are added up and divided by 6 to get the overall weighted risk score for each of the 23 issues.

In case insufficient coffee specific information is found, other evidence related to the country's agriculture sector will be considered.

 This icon indicates the evidence is coffee specific.

The OIA covers the overall coffee sector, making no distinction between, e.g. (i) smallholders and estates, (ii) sun-dried and washed-coffee, (iii) sun- and shade-grown coffee.

The data presented is accurate at the time of publication based on the information collected from the above sources. Neither RA nor JDE will be liable for damage as a result of inaccuracies in the information. For more information about the OIA's method, sources and expert surveys, please contact us at OIA@ra.org.

* Through 3rd party audits producer's compliance is evaluated against the UTZ Certification Standard (owned by the Rainforest Alliance). Audit reports provide insights on certification gaps for the analysis."

** Rainforest Alliance experts (country representative, thematic and coffee experts) and external expert(s) (e.g. National Coffee Platform representative) are surveyed.




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SOIL FERTILITY MANAGEMENT		JDE Sourcing principle 1.1
Score	3.7	
Law	Kenya ratified the United Nations Convention to Combat Desertification (UN Treaty Collection). There are two important national policies regarding soil fertility. National Agricultural Soil Management Policy (NASMP) was created with the aim to raise awareness about the functions soil fulfill and the threats to soil conservation (Ministry of Agriculture, livestock, fisheries, and cooperatives, 2020). The National Land Reclamation Policy of 2013 calls for the government to manage degraded areas (Mumina, 2020). There are several institutions involved in soil and water management, each with their specific Act and mandates. None of these acts address soil management in agriculture adequately. Weak coordination, implementation and enforcement of existing environment and natural resources policies and legislation is evident. (Kenyan Ministry of Agriculture, livestock, fisheries, and cooperatives, 2020).	
Evidence	Most soils in Kenya are characterized by soil nutrient deficiencies, soil degradation, and poor land management practices (Tadesse et al., 2020). Smallholder coffee production is constrained by a lack of high yielding varieties, changes in climatic conditions, poor management practices as well as low soil fertility (Tadesse et al., 2020). Non-conformities regarding soil fertility management were found in UTZ audits between 2016-2020 (RA, 2020). According to COSA (2019), about 70% of trained farmers declared being trained in soil fertility management.	
Prevailing expert opinion	Medium-high risk: In the coffee-producing regions, only some farmers manage their soil in an effective way. "Most smallholder farmers do not test their soils. Wrong use of fertilizers leads to soil exhaustion. However, most have implemented soil erosion measures" (Expert Survey, 2021).	


BUFFER ZONES		JDE Sourcing principle 2.1
Score	3.0	
Law	Kenya has passed the Pest Control Products Regulations (licensing of premises) to control the use of pesticides and reduce environmental damage (World Bank, 2020). The National Environmental Management Authority (NEMA) and the Water Regulation Management Authority (WRMA) oversee monitoring and licensing of buffer zones surrounding bodies of water (riparian zones). The Water Resource Management Rules of 2006 prohibit several land uses along riparian buffer zones, including cultivation or tillage, clearing of indigenous vegetation, building of permanent structures and disposal of waste. Despite the existence of legislation, these environmentally fragile ecosystems continue to be exploited and destroyed. Government agencies in Kenya do not conduct regular checks to assess environmental damage caused by pesticides (European Parliament, 2020).	
Evidence	The average farmland size is approximately 0.8 hectare, which leaves no room for buffer zones which are important precautionary measures. They are mandatory for all pesticides – starting from 5m around the farm. Many farms slope towards rivers, dams, and other water bodies, making it easy for run-off water to wash chemicals into water that is often used for domestic purposes (Heinrich Boll Stiftung, 2020). No non-conformities regarding buffer zones were found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Medium-low risk: "Smallholder farming in Kenya is characterized by farmers with less than 0.8 ha and this makes it harder to observe and maintain the recommended buffer zones" (Expert Survey, 2021).	


WATER USE EFFICIENCY		JDE Sourcing principle 2.2
Score	3.5	
Law	The policies and legislation for water management in agriculture are inadequate, which is exemplified by the fact that the only existing legal framework is the Irrigation Act (1966). The Act established the National Irrigation Board (NIB) and the management of tenant-based irrigation schemes. A national irrigation policy and legal framework are under formulation to regulate the irrigation sector. The Ministry of Management and Development has developed guidelines and manuals to direct the development of smallholder irrigation (WWF Water Quality Index). There is a need for increased awareness on water use, management, and storage particularly with ongoing efforts to increase the area under irrigation in Kenya and to improve regulations in water management (WRMA, 2013; Kamau, 2021).	
Evidence	Kenya belongs to the least efficient countries in the region when it comes to water use efficiency (UN SDG6, 2018). Today, just 3% of Kenya's arable land is irrigated, with the remaining areas relying on increasingly unpredictable rainfall. The government aims to reach 500 000 irrigated ha by 2022, but the most recent data suggests that less than half that figure will be achieved (Dalberg, 2020). Coffee has the largest water footprint per crop (Water footprint Network, 2016). Coffee and rice together account for 40% of the blue-water footprint. Blue water footprint is water that has been sourced from surface or groundwater resources.	
Prevailing expert opinion	Medium-low risk: Water availability is an issue in the dry season. "Due to the changes in the landscape as well as climate change, plantations are facing water scarcity challenges and this has resulted in irrigation water rationalization" (Expert Survey, 2021).	


WASTEWATER AND WATER QUALITY TREATMENT AT PROCESSING UNITS		JDE Sourcing principle 2.3
Score	3.5	
Law	The National Water Authority established by the National Water Act (2002) is responsible for issuing permits to all water users, including to those who recycle water. Kenya's water regulations regarding water reuse are all carried under the water regulations implemented by NEMA and the National Water Authority. The NEMA standards do not allow for wastewater reuse. (Wakhungu et al. 2019). There is a need to formulate a national wastewater reuse policy which provides guidelines for maximum allowable levels of pesticides, herbicides, and heavy metals in wastewater reuse (Kaluli, 2011). The existing water policy does not include wastewater reuse. To achieve water reuse objectives, the National Institute of Public Finance and Policy (2010) proposed to promote new wastewater treatment technologies (Wakhungu et al. 2019).	
Evidence	Kenya ranks 116/134 in the Yale Environmental Performance Index regarding wastewater treatment. Different wastewater management strategies are employed in the coffee growing regions. These strategies include re-cycling the wastewater, draining it to the lagoons or seepage pits or soak pits (Mwangi et al. 2017). There are between 1 and 8 freshwater species with which coffee production in Kenya overlaps. This can be dangerous since coffee processing can be an intensely dirty process, and the effluents from coffee washing stations can flow downhill and contaminate the local watershed (GMAP, 2017). This is a risk since 90% of coffee production comes from wet processing (Mwangi et al. 2017). Organic pollutants wash into these waterways, reducing the oxygen levels and threatening flora and fauna (GMAP, 2017). A survey of rivers between Nairobi and Thika towns showed that they were all polluted with coffee waste (Kanyiri et al., 2016).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee-producing regions, it is unlikely that, at processing units, wastewater is treated and is of good quality before it is discharged into aquatic ecosystems or drainage systems. "Almost all wet processing will have some form of waste treatment. Effectiveness of these waste pits vary" (Expert Survey, 2021).	

GHG EMISSIONS REDUCTION		JDE Sourcing principle 3.1
Score	2.9	
Law	The Kenyan Government has adopted the Climate Change Act (2016), which provides a framework for the promotion of climate-resilient low-carbon economic development (Republic of Kenya, 2016). Kenya's first Nationally Determined Contribution (NDC) sought to abate its Greenhouse Gas (GHG) emissions by 30% by 2030 relative to the Business-as-Usual scenario (UFCC, 2016). The NDC notes that Kenya will build upon the National Climate Change Action Plan (2011-2028) actions through (1) expansion of geothermal, solar, and wind energy production, and the (2) enhancement of energy and resource efficiency (USAID, 2017). The aim of Kenya's Vision 2030 is to make Kenya a newly industrialized, middle-income country providing a high quality of life to all its citizens into a clean and secure environment by 2030" (Kenya Vision 2030, 2007).	
Evidence	An estimated 9 million Kenyan households have access to off-grid renewable energy and this figure is set to rise (WEF, 2018). Households still use kerosene as the main source of lighting in both rural and urban areas. Diesel generators are the predominant form of energy in rural areas in sub-Saharan Africa and particularly in Kenya (Hansen & Xydis, 2018). The diesel generators account for 83% of the total electricity that provides lighting to rural areas. The costs of fossil fuels are high and pose a major obstacle for the expansion of electricity connections to low-income households and small businesses, which may be able to benefit from alternative sources of energy such as wind and solar (Hansen & Xydis, 2018). Almost all coffee cooperatives in Kenya use diesel generators as the primary energy source for their factories (We Effect, 2016; Levinson, 2017). Levinson (2017) found that coffee farmers are positive about solar energy but experience some barriers in regards to adopting the technology such as lack of knowledge and limited access to financial resources.	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee-producing regions, it is unlikely that farmers use energy efficiently and that farmers use renewable energy sources." There is the predominant use of diesel-powered generators and or pumps" (Expert survey, 2021).	


CLIMATE SMART AGRICULTURE		JDE Sourcing principle 3.2
Score	4.1	
Law	The Climate Change Act and the National Climate Change Policy Framework provide guidance for low-carbon and climate resilient development (USAID, 2020). The Climate Smart Agriculture (CSA) Strategy 2017–2030 functions as a framework to support the implementation of mitigation practices in agriculture (Ministry of Agriculture, 2018; Republic of Kenya, 2018; Climate Action Tracker, 2020; USAID, 2017). The Coffee Research Institute (CRI) has a program in place since 2012, to help farmers reverse the effects of global warming and boost coffee production.	
Evidence	The ND-GAIN Country Index ranks Kenya 148th out of 182 countries in terms of the country's vulnerability to climate change and its readiness to improve resilience. The effects of climate change in Kenya on coffee production include unreliable and erratic rains with shorter seasons (ICO, 2019). Changing rainfall patterns alters the flowering pattern of coffee berries, which in turn affects disease management, insect management, and harvesting. Most coffee growing zones in central Kenya, particularly Kiambu and Muranga, are no longer suitable for growing coffee due to rising temperatures (Kamau, 2017). To date, many coffee smallholder farmers continue to follow environmentally harmful practices (Nature Kenya, 2020). There is major disparity between the goals Kenya desires to achieve in terms of climate-smart agriculture and their potential ability to achieve these goals.	
Prevailing expert opinion	High risk: Climate change seems to have a negative impact on coffee production and farmers are not able to adapt. "Climate change is real, and this has impacted negatively on the coffee farming community with majority of farming raising issues from changes in flowering, high disease and pest infestations to poor fruit set and complete loss of crop" (Expert Survey, 2021).	


FOREST AND HIGH CONSERVATION VALUE AREAS (HCVS)		JDE Sourcing principle 3.3
Score	2.8	
Law	Sustainable and productive management of land and land resources is enshrined in the country's Constitution, adopted in 2010, which establishes a tree cover target of at least 10% of the country's land area (National Council, 2010). The Forest Conservation and Management Act (2016) supports the development and sustainable management of all forest resources. The Act also indicates that indigenous forests and woodlands are to be managed on a sustainable basis (Climate Action Tracker, 2020). As a participant in the UN-REDD Program and the Forest Carbon Partnership Facility, Kenya has received targeted support for a feasibility study of opportunities to improve deficiency in forestry operations and forest product processing and other activities to enhance forest carbon stocks (USAID, 2017).	
Evidence	There is some empirical evidence that coffee has been a recent driver of deforestation in undeveloped areas of the Central Highlands in Kenya. The overall impact of expansion or contraction of cultivated areas of small coffee farms near Mount Kenya on deforestation is ambiguous (GMAP, 2017). To date, many smallholder farmers continue to follow environmentally harmful practices like cutting down trees, slashing and burning plant biomass, poor tillage practices, poor management of coffee processing by-products and the degradation of forests and riparian buffer zones (Media, 2018).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee-producing regions, it is unlikely that farmers have converted High Conservation Value areas to agricultural production or other land uses since January 1st, 2014. "All farmers in Kenya are settled on agricultural land- HCVs and other protected areas are under government custody." (Expert Survey, 2021).	


NATURAL VEGETATION AND ON-FARM BIODIVERSITY		JDE Sourcing principle 3.4
Score	3.0	
Law	Kenya has ratified international conventions such as the Convention on Biological Diversity (1994). The National Biodiversity Strategy and Action Plan (2015–2025) is the main instrument for implementing the Convention on Biological Diversity at the country level to enhance biodiversity conservation and management. At the national level, attempts are being made to implement the Multilateral Environmental Agreements through a wide range of measures such as National Biodiversity Strategy Action Plans (NBSAPs), National Environmental Action Plans (NEAPs) and policy and legal frameworks (Shah et al., 2019). While the Kenyan government recognizes the use of ecosystem approaches as the best method for conserving biodiversity, the country has inadequate environment- and biodiversity-related laws, policies and instructional frameworks that target this end (Simy & Coluzzo, 2017).	
Evidence	Approximately 50% of Kenya's agricultural land contains more than 10% of natural vegetation and 13% includes agroforestry (Agrobiodiversity index report, 2019). Coffee is a native plant in East Africa, where it is often still traditionally grown under 20-foot-tall native trees (National Geographic, 2019). Recent evidence found that coffee production under monoculture and poor management techniques is having negative impacts on native vegetation in Meru, Embu and Kirintaga counties (GMAP, 2017). Several non-conformities were found in UTZ audits between 2016–2020 (RA, 2020).	
Prevailing expert opinion	Medium-high risk: When looking at the country's coffee producing regions, it is unlikely that farmers contribute to the preservation of natural vegetation and on-farm biodiversity. "On traditional coffee farms existing agroforestry is not maintained but farmers maintain native trees around the farm" (Expert survey, 2021).	




PROTECTED AREAS		JDE Sourcing principle 3.5
Score	2.4	
Law	Kenya has the Protected Areas Act (Cap. 204), which stipulates that no person shall be in those areas without permission of the prescribed authority or the President or specified Ministers. There are laws prohibiting conducting activities in buffer zones. The Environmental Management and Coordination Act (EMCA) and the Water Act give absolute powers to the National Environmental Management Authority (NEMA) and the Water Regulation Management Authority (WRMA), respectively, for monitoring and licensing of riparian buffer zone uses. The Water Resource Management Rules of 2006 prohibit several lands uses along riparian buffer zones, including cultivation or tillage, clearing of indigenous vegetation, building of permanent structures and disposal of waste. Despite the existence of legislations, these environmentally fragile ecosystems continue to be exploited and destroyed (Matunda, 2015).	
Evidence	Kenya has a total of 411 protected areas (terrestrial protected area coverage: 12.42%) of which 40 also have management effectiveness evaluations. The number of protected areas is a growing trend (Protected Planet index). Since 1980, there has been a 7.5% increase in the coverage of Key Biodiversity Areas within protected areas in Kenya. Over 400 official PAs in Kenya include forest reserves, terrestrial and marine national parks, and reserves, as well as community conserved areas (IBAT, 2020; Masumi, 2021). There are at least 10 protected areas designated IUCN Category II in the major coffee producing areas in Kenya, however no evidence shows that coffee production negatively impacts those areas (GMAP, 2017).	
Prevailing expert opinion	Medium-low: When looking at the country's coffee producing regions, it is unlikely that coffee is produced or processed in protected areas or their designated buffer zones. "All farmers in Kenya are settled on agricultural land. High Conservation Value (HVC) areas and other protected areas are under government custody".	

YOUTH INCLUSION		JDE Sourcing principle 4.1
Score	4.0	
Law	The government has developed the Kenya Youth Agribusiness Strategy to address challenges that hinder youth from participating effectively in the sector. The Strategy is aimed at providing new opportunities for youth in agriculture and its value chains. Vision 2030 is a national long term growth plan that identifies agriculture as the key mover of the economic pillar with the objective of maintaining a sustainable economic growth of 10% annually over a period of 20 years from 2010. The vision recommends ‘devolved funds’ targeting the youth, women and all vulnerable groups and communities with high incidence of poverty particularly those living in the arid and semi-arid areas of the country (Gitua & Goris, 2016).	
Evidence	A large age gap exists in the coffee sector, since more than 50% of the farmers are above the age of 60 (Hussain et al., 2020). A study noted that only 5% of the respondents were below 35 years (GMAP, 2017). Thus, the future of Kenya’s production may be further compromised without millennial aged farmers who demonstrate more physical strength and ability to adapt to new technologies (Ngibuini, 2019; Hussain et al., 2020). Allowing landless youth to lease coffee trees instead of having to own land can hugely benefit the participation of youth in coffee farming (Hussain et al., 2020).	
Prevailing expert opinion	Highly discrepant risk opinions*: When looking at the country’s coffee producing regions, it remains contested whether the participation of young farmers is promoted. “It is unclear to which extent established farms and farm groups promote youth initiatives, since many are focused on youth creating their own businesses outside of the farm” (Expert Survey, 2021).	
* The averaged risk score does not sufficiently reflect the wide discrepancy in expert opinion, ranging from low to high risk.		


GENDER EQUALITY		JDE Sourcing principle 4.2
Score	4.2	
Law	Kenya has ratified the Discrimination (Employment and Occupation) Convention and the Equal Remuneration Convention (ILO). In the Kenyan Constitution it is set out that every worker has the right to fair remuneration, reasonable working conditions, and fair labor practices. The Employment Act of 2007 prohibits discrimination in employment (Republic of Kenya, 2019). The Employment Act places a duty on the Minister of Labor and employers to promote gender equality. Employers are prohibited from discrimination on the grounds of sex. An employer is obligated to pay its employees equal remuneration for work of equal value (Fredman, 2014). Kenya's State Department for Gender in the Ministry of Public Service and Gender has launched the National Policy on Gender and Development (NPGAD).	
Evidence	The Women's Empowerment in Agriculture Index (WEAI) – a comprehensive measure across five dimensions: decision about agricultural production, access to and decision-making power in the use productive assets, control over income, leadership in the community, and time allocation (Malapit et al., 2014). Kenya's WEAI score is reported to be 0.72, and thus considered to be a low score (ICO, 2018). Women exclusion in coffee farming has posed a big gap between the existing training and implementation. This is because most of the trainings are attended by men while women tender the coffee bushes. The coffee economic viability study noted that only 17% of the respondents were women, indicating that while most of the women do the work on the farm, they are not engaged in any coffee farming decision making (Kenya Coffee Platform, 2018).	
Prevailing expert opinion	Medium-high risk: Women sometimes do not have equal rights, responsibilities, and opportunities." The coffee sector and value chain in Kenya is heavily male dominated with regards to income generating activities e.g., sales to first buyers, trading, decision-making and land tenure. Women's role in the value chain is confined to production and salaried work in coffee facilities (e.g., coffee sorting if done manually). Despite their work in the sector, they do not reap the economic benefits of it" (Expert Survey, 2021).	


CHILD LABOR		JDE Sourcing principle 5.1
Score	2.8	
Law	Kenya ratified the Worst Forms of Child Labor Convention (No. 182), and adopted the Children Act in 2001. This is a major step towards improving the protection of children against exploitation and inhuman working conditions. Kenya has also ratified other key ILO Conventions touching on core labor rights, including the Minimum Age Convention of 1973 (specifying 16 years) and the Convention on Worst Forms of Child Labor of 1999 (Waribi, 2007). According to the Employment Act (children's rules), any person who employs a child, or causes a child to be employed without the prior written permission of an authorized officer, shall be guilty of an offence (Kenya Law Reports). In 2020, the government took measures to reinvigorate its National Steering Committee on Child Labor. The government also reinstituted county-level child labor committees, and increased the number of prosecutions for worst forms of child labor. Nonetheless, the government lacks a sufficient number of labor inspectors and financial resources to ensure that child labor laws are enforced (USDOL, 2020).	
Evidence	Child labor is widespread in Kenya, particularly in the informal sector. Coffee is listed as a crop produced with child labor by the US Department of State and Department of Labor (USDOL, 2020). There is consistent historical evidence of child labor being used to produce coffee in Kenya. Almost three million children between the ages of five and 14 are engaged in child labor. Much of the child labor occurs on family farms, but there is evidence from the past ten years that children work on larger coffee plantations as well (GMAP, 2017). An ILO report notes that where child labor exists in the Kenyan coffee sector, it is actually more likely to be present on commercial plantations than on smallholder farms (Verité, 2019). The Rainforest Alliance Social Risk map attaches a medium risk score to child labor occurring in Kenya's coffee sector (RA, 2020).	
Prevailing expert opinion	Low risk: "Worst forms of child labor and (hazardous) work by underaged children is eradicated. " In Kenya hiring of persons under 18 years is illegal. There is a free education system so most of the children are in school" (Expert Survey, 2021).	


FORCED LABOR		JDE Sourcing principle 6.1
Score	2.0	
Law	Kenya has ratified both the Abolition of Forced Labor Convention 1957 (No. 105), and the Forced Labor Convention 1930 (No. 29). (GMAP, 2017). National law prohibits all forms of forced or compulsory labor, but the Kenya government is ineffective at enforcing the law, and there are insufficient resources and inspections for effective remediation of violations (GMAP, 2017, 2020). In addition, slavery is not criminalized as a distinct offence. Kenya appears to violate its obligations under the International Covenant on Civil and Political Rights regarding slavery (Global Slavery Index, 2019).	
Evidence	Kenya is ranked 136 out of 167 on the Global Slavery Index, with an estimated 64,900 humans in modern slavery conditions. The Social Hotspot Database attaches a high score to the risk of forced labor occurring in the country's crop sector (SHDB). The Rainforest Alliance Social Risk Map attaches a medium risk to the likelihood of forced labor occurring in the coffee sector. This score is not reflective of the actual occurrence of forced labor. There have been no recent publicly reported cases of forced labor in the coffee sector (COSA, 2021). Coffee is not included on the US Department of Labor List of goods produced with forced labor (USDOL, 2020). There were also no non-conformities regarding forced labor found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Medium-low risk: It is unlikely that forced labor happens in the country's coffee-producing regions. " In Kenya employment is voluntary and every worker gets paid as per the agreement. There are so many trade unions that protect workers " (Expert Survey, 2021).	


WORKERS' RIGHTS AND DUTIES		JDE Sourcing principle 6.2
Highest score	2.8	
ACCOMMODATION		
Score	2.7	
Law	Section 31 of the Employment Act obligates employers to either (1) provide reasonable housing accommodation for each of their employees, either at or near to the place of employment, or (2) pay the employee a sufficient sum, as rent, in addition to the wages or salary to be able to obtain an accommodation (Ogalo-Omondi, 2018).	
Evidence	The Social Hotspot Database attaches a low score to the risk that average wage in the country's crop sector is below the country minimum wage (SHDB). Kenyan coffee corporations have routinely provided housing and other facilities for employees, the quality of which varies greatly from plantation to plantation. Accommodations are often in very poor condition. Trade union representatives have cited this as one of the major problems facing agricultural workers in Kenya (GMAP, 2017). An Oxfam study (2017) reported widespread labor abuses such as wage and hour violations and poor living and sanitary conditions in both tea and coffee production.	
Prevailing expert opinion	Medium-low risk: Workers and their families are responsible for their own accommodation." Most of workers live in their houses, only a small fraction is housed " (Expert Survey, 2021).	
COLLECTIVE BARGAINING		
Score	2.7	
Law	Kenya has not ratified the Freedom of Association and Protection of the Right to Organize Convention, 1948 (No. 87). Kenya has ratified the Right to Organize and Collective Bargaining Convention, 1949 (No. 98) (ILO). In accordance with article 41 of the Constitution, every trade union, employers' organization, and employer has the right to engage in collective bargaining (ILO). Article 37 of the Constitution of Kenya provides for freedom of peaceful assembly and states that 'every person has the right, peaceably and unarmed, to assemble, to demonstrate, to picket, and to present petitions to public authorities. This right can only be 'limited by law, and then only to the extent that the limitation is reasonable, justifiable in an open and democratic society' (UNHCR, 2016).	
Evidence	The 2020 ITUC Global Rights Index classifies Kenya under rating 4/5 indicating that systematic violations of rights take place. The Social Hotspot Database attaches a high-risk score to freedom of association in the Kenyan crop sector. According to Felix et al. (2018) coffee farmers disagreed with the statement that they, as cooperative members, had a right to bargain collectively on coffee prices. The study shows that collective bargaining agreements dissatisfaction among cooperatives, leading to a reduction in the amount of coffee delivered to farmer cooperatives (Mutwiri & Wafula, 2018). No non-conformities regarding collective bargaining were found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee-producing regions, it is likely that workers are fully aware of their rights and duties and that their employers adhere to those rights and duties, including the right of collective bargaining. "The labor movement is very strong with several unions in operation. The Kenya Plantation Workers Union (KPWU) takes care of all the plantation workers in the coffee farms, educates them about their rights and negotiates with management" (Expert Survey, 2021).	
MINIMUM WAGE		
Score	2.8	
Law	Kenya has ratified the Minimum Wage Convention 131 only and not the Regular pay & wage protection: Conventions 95 (1949) and 117(1962) (ILO) . Wages are determined for agriculture as well as general sector workers by the Agricultural and General Wage Councils constituted under the Labor Institutions Act. On the recommendation of these Councils, the Minister may issue Wages Order setting minimum rates of remuneration (Kasa, 2020; Ogalo-Omondi 2018). Minimum wages vary by occupational sectors, skill levels and geographical areas. An employer who fails to pay statutory minimum wage or provide a worker with conditions of employment as provided under the Wages Order commits an offence. The labor inspector is authorized to monitor and enforce compliance with the Labor Law. Non-compliance with the Employment Act is an offence, punishable by a fine and imprisonment of 2 years (Ahmad, 2021).	
Evidence	The study of Hakzimani et al. (2017) found that wages for casual workers on coffee farms are generally below the minimum wage in the agricultural industry in Kenya (USD 3.33) per day. The minimum salaries for permanent workers (ranging from USD 80.70 per month to USD 291 per month) on coffee farms are above the country's minimum wage (USD 65.78 per month). The Social Hotspot Database attaches a low score to the risk of average wages in the agricultural sector being below the country's minimum wage.	
Prevailing expert opinion	Medium-low risk: Most workers are paid the minimum wage or more "The minimum wage is set by the government and the unions ensure that this is adhered to" (Expert Survey, 2021).	


SAFE WORKING ENVIRONMENT		JDE Sourcing principle 6.3
Highest score	2.8	
OCCUPATIONAL HEALTH SAFETY		
Score	2.8	
Law	Kenya has ratified the Occupational Safety and Health Convention but has not ratified the Safety and Health in Agriculture Convention (ILO; Kenya Law Reports). The OSH Act secures the safety, health and welfare of workers and all persons lawfully present at workplaces, by minimizing exposure of workers to hazards at their workplaces (Kodiaga, 2020). The Occupational Safety and Health Act in Kenya does not explicitly mention agriculture in the text except in the list of occupational diseases, where exposure to molded hay is cited to be a contributor to pulmonary disease due to inhalation of molded dust (OSHA, 2007; Mburu, 2019). The labor ministry's Directorate of Occupational Health and Safety has the authority to enforce national laws. Enforcement through fines and inspections were rated as ineffective. There are reports that employers routinely bribed inspectors to prevent them from reporting on violations (GMAP, 2017).	
Evidence	Mburu (2019) found that farm workers were exposed to a variety of occupational hazards that includes biological, physical, chemical, and ergonomic. The study by Rotich (2020) conducted on tea farms and KTDA factories in Kenya found that noise was the most prevalent occupational risk impacting the health of employees. Carcinogenic agents were found to be the least prevalent. Ergonomic risks, injuries and air born particles had intermediate scores (Rotich, 2020). The Social Hotspot Database attaches a medium score to the risk of occupational noise exposure and a low score to occupational cancer risk in the country's crop sector (SHDB). Violations of health and safety regulations were found to be common in the coffee sector (GMAP, 2017). No non-conformities on OHS were found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee producing regions, it is likely that workers enjoy a safe working environment, where adequate steps are taken to prevent work-related injuries. "Quite a high number of employers are quite knowledgeable on OHS and they actually have scheduled training sessions throughout the year especially on farms/plantations" (Expert Survey, 2021).	
FIRST AID AND EMERGENCY HEALTHCARE		
Score	2.8	
Law	Kenya has not ratified both the Safety and Health in Agriculture Convention, 2001 (No 184) and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) (ILO). The Occupational Safety and Health Act No. 15 of obliges employers to provide and maintain a ready-accessible first-aid box (Kenya Law Reports). The employer is also required to provide proper medicine to his employees during times of illness and if possible medical attendance during times of emergency. This obligation stems from section 34 of the Employment Act (Kenya Law Reports; Ogalo-Omondi, 2018). The existing Emergency Medical Services (EMS) in Kenya remains unrecognized by the government and functions independent of the national healthcare system (Wachira & Martin, 2011; Gichuki, 2019).	
Evidence	According to a study by Akenroye et al. (2021) most respondents are aware of the health and safety risks associated with manual harvesting of cherries. They perceive their work as low risk and not worth paying attention to. Therefore, they are indifferent to having first-aid kits or using personal protective gear when working in the coffee plantations. No non-conformities were found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Low risk: When looking at the country's coffee-producing regions, it is likely that workers enjoy a safe working environment, where adequate steps are taken to prevent work-related injuries. "First aids and emergency response procedures are a "must-have" for all the workplace areas" (Expert Survey, 2021).	
DRINKING WATER		
Score	2.8	
Law	Kenya has not ratified the Safety and Health in Agriculture Convention, 2001 (No 184) (ILO). The Occupational Safety and health act No. 15 of 2007 states that every occupier shall provide and maintain an adequate supply of wholesome drinking water at suitable points conveniently accessible to all persons employed (Kenya Law Reports) Every employer is bound by Section 33 of the Employment Act to provide sufficient supply of drinking water for the use of his employees at the place of employment and within a reasonable distance of any housing accommodation provided for them by him (Ogalo-Omondi (2018).	
Evidence	In Kenya, 63.2% of the total population has access to safe drinking water, whereas the percentage for the rural population lies at 56.8% (FAO AQUASTAT). Conditions of estate housing on coffee estates are reportedly poor and unhygienic for all workers, with reports of cases where there has been no clean water or sanitation. Water-borne illness rates are reportedly high (Ergon Associates, 2018)	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee-producing regions, it is likely that workers have convenient access to safe drinking water. "We found that approximately 50% of farms have access to drinking water in less than a 5-minute walk. Around 20% have access to drinking water between 5 - 20-minute walk" (Expert Survey, 2021).	


AGROCHEMICAL HANDLING		JDE Sourcing principle 6.4
Score	3.8	
Law	Kenya has passed several policies related to agrochemical handling e.g., Pesticide Registration and Control Proclamation, Biosafety Proclamation, and Hazardous Waste Management and Disposal Control Proclamation (ILO). Regulation 7 of the Pesticide Registration Regulation requires that every person operating premises dealing with pesticides must have adequate knowledge of the chemistry, toxicology, efficacy, and general use of the pest control product (Kenya Law Reports). Regulations state that companies are obligated to provide workers with protective gear. However, there is no requirement that workers must wear protective gear, and there are no provisions to discipline individuals that choose not to wear the proper protection (GMAP, 2017). The government needs to formulate and implement appropriate subsidy to help smallholder farmers afford organic manure and protective gear for farmworkers (Akenroye, 2021).	
Evidence	In Kenya pesticides are often overused and misused by farmers. The improper handling was mainly through unsafe storage (23%), unsafe disposal of leftovers or rinsing empty pesticide containers (40%) or failure to wear the required minimum protective gear (68%) (Hasan et al., 2017). At the coffee farm level, the study revealed that instability of coffee prices leads to low-income generation from coffee growing. This translates into poor investment in farm inputs such as agrochemicals and protective gear, as attested to by about 68% of the farmers interviewed. At farm level, health risks due to minimum use of protective gear was pointed out as a concern by coffee farmers (Kanyiri & Waswa, 2017). Non-conformities regarding agrochemical handling were found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee producing regions, it is unlikely that agrochemicals are handled in the right way. "In the estate sector, all those handling pesticides are trained on their safe use and disposal. The situation maybe different at the small-scale farmer level" (Expert Survey, 2021).	


FARM & HOUSEHOLD ECONOMICS		JDE Sourcing principle 7.1
Score	3.9	
Law	The Nairobi Coffee Exchange (NCE) (which continues to this day) was established in Nairobi to leave more of the value of green coffee bean at farm-level. The auction also created a pricing system that is designed to reward higher quality with better prices (NCE; Sucafina, 2020). Kenya's policies and legal frameworks currently leave farmers without a marketing license at high risks since the rules state that a batch of coffee belongs to the farmer up to the point of sale. Thus, the farmers are obliged to carry the risks at all stages of marketing (Hussain et al., 2020). In the April 2016 State of the Nation address, the president announced that licensing fees and levies, which add another 2-5% to the cost of supply chain actors, would be waived (Barjolle et al., 2017).	
Evidence	Cooperatives are required by law to pay farmers at least 80% of the total upon delivery of their cherries. However, cherry repayment rates differ from region to region, ranging from 84.6% to 10.2%. The timeframe until farmers are paid is largely dependent on the efficiency of the marketing agents and the availability of buyers (ICO, 2019). This delay has made it difficult for farmers to meet periodic expenses. As a result, they lose out on input application and are not able to optimize farm operations, which in turn influences yield and quality of coffee (Karugu et al., 2020). The study by Karugu (2020) also revealed that most of the small farmers operated their businesses informally and do not have records or financial information that banks require for lending.	
Prevailing expert opinion	Medium-high risk: Most coffee farmers are subsistence farmers and not sufficiently aware of the farm and household economics. "Trainings are regularly conducted on record keeping. The main challenge is the literacy levels and average age of the coffee farmer which is above 60" (Expert Survey, 2021).	


TRADING RELATIONSHIPS		JDE Sourcing principle 7.2
Score	3.2	
Law	<p>The Coffee Directorate is the apex body for the coffee industry, established in 1934. The Directorate was charged with the responsibility to carry out regulation and marketing of coffee. In 2001, the Coffee Act No. 9 of 2001 was enacted, establishing the Directorate as a statutory body under the Ministry of Agriculture, Livestock and Fisheries, solely to “be a reputable facilitator for the Development, Promotion and overall oversight for the coffee industry” (Embassy of the republic of Kenya). The government is focusing on improving production and quality of coffee by reviving its growth, training, and supporting farmers with quality seeds, extension services, refurbishing of coffee factories and mills, improving storage and sourcing of markets (Media, 2020).</p>	
Evidence	<p>One of the most prominently cited constraints to entrepreneurship among coffee farmers in Kenya is the lack of adequate finance (Gichichi et al., 2019). UNCTAD (2018) indicated that the following issues affect coffee production: poor access to financing, lack of investment in production, processing, and the incapacity of private and public entities promoting and supporting Kenyan coffee, (Sabari, 2020). Microfinance institutions have shown a positive trend reaching out to borrowers. However, despite this positive trend, credit uptake by smallholder coffee farmers in the study area is still low (Anderson, 2018). Agricultural exports have faced demand disruptions and some supply-chain issues during COVID-19. This has affected exported vegetables, nuts, coffee, and cocoa to some degree. In many cases, this is due to slowed demand owing to lockdowns in Europe, North America, and India, leading to closure of coffee shops and restaurants as well as processing facilities (McKinsey & Co, 2020).</p>	
Prevailing expert opinion	<p>Medium-low risk: When looking at the country’s coffee-producing regions, it is likely that coffee sourcing companies facilitate farmers to access key production inputs, such as plantlets, fertilizer, and agrochemicals, and that coffee-sourcing companies facilitate farmers to access services, such as credit and market information. “Trading relations are critical. Incentives are not adequately allocated between marketing agents, cooperatives, and farmers.” (Expert Survey, 2021).</p>	

GOOD AGRICULTURAL PRACTICES		JDE Sourcing principle 8.1
Score	3.2	
Law	<p>Under the Agriculture Act Chapter 318 the Coffee development authority order (1966) was established. This Act states that the named Authority shall be empowered to control and supervise the cultivation by grower, control and supervise the purchase and sale of seedlings, inspect the growing and harvested crops, control and supervise the purchase, transportation and storage of the crop and the processing of cherry (Republic of Kenya). The project of Local Development Research Institute (LDRI) aims to ensure that farmers adopt good agronomic practices in eight counties. In this approach, Village Based Advisors (VBAs) assist in training other farmers within their villages (LDRI, 2019).</p>	
Evidence	<p>Several projects in Kenya have successfully demonstrated the use of organic fertilizer from on-farm livestock (Global Coffee Platform, 2018). COSA (2019) did find that in general, 89% of trained farmers declared being trained in pruning, 79% in application of chemical fertilizers, 70% in soil fertility management (70%) and 67% in good harvesting practices. Technoserve (2016) has found that the use of better agricultural techniques by farmers in Kenya, led to an average yield increase of 38% one year after completing the training. An important concern for the coffee sector in Kenya is the price volatility and the uncertainty of rewards for quality at the producer level (Bennet et al., 2021). Akenroye et al. (2021) identified eight key issues regarding the adoption of Good Agricultural Practices (GAP) ranging from lack of finance to invest in drip irrigation, to shortage of material for sufficient manure, the use of compost and the land tenure system making intercropping difficult.</p>	
Prevailing expert opinion	<p>Medium-high risk: Expert estimates of the percentage of farmers in the coffee-producing regions using Good Agricultural Practices vary between <25 and >75%: “About 50% of smallholder farmers do employ GAP in their farms, although with a lot of challenges” (Expert Survey, 2021).</p>	

HARVEST AND POST-HARVEST PRACTICES		JDE Sourcing principle 8.2
Score	2.7	
Law	<p>The government is focusing on improving production and quality of coffee by reviving its growth, training, and supporting farmers with quality seeds, extension services, refurbishing of coffee factories and mills, improving storage and sourcing of markets (Media, 2020). The Government of Kenya, supported by the World Bank, has initiated a new program, "the Coffee Revitalization Program", to rejuvenate Kenya's coffee sector in eight counties. Some of the proposed interventions under the program include production intensification in existing plantations, modernizing of processing facilities, and strengthening of producer organizations (USAID, 2020).</p>	
Evidence	<p>Kenyan Coffee often ranks among the top 5 coffees in the world. One reason Kenyan coffee stand out is the "Kenyan Process" or double processing which Kenyan coffee undergoes (Media, 2018). 90% of the country's coffee is wet processed at washing stations that are owned by cooperative societies and estate farmers, while the remaining 10% of coffee is dry processed into mbuni (dried coffee that has not undergone pulping). Storage is performed in good, constructed stores, that allows good air circulation (Hussain et al. (2020). Understanding the way different processing quality control measures can affect the taste of coffee is not commonly known by smallholder farmers because green beans are sold without being tasted. Some of the problems associated with less than premium bean quality, such as pruning, quality control methods, and a lack of training of managing farms require a change in practice (Corado et al., 2019). Due to the high cost of fertilizers and pesticides, improving the beans by these methods may not be feasible, therefore other improvement methods should be considered such as quality control during different sorting stages (Corado et al., 2019). Non-conformities regarding harvest and post-harvest practices were found in UTZ audits between 2016–2020 (RA, 2020).</p>	
Prevailing expert opinion	<p>Medium-low risk: Expert estimates on the percentage of farmers in the coffee-producing regions implementing good harvest and post-harvest practices vary between <25 and 75%. However, most experts indicate that it is between 50% and 75%. "All the factory managers have undergone training on good processing practices, but financial constraints impede full implementation at the cooperative sector" (Expert Survey, 2021).</p>	

INTEGRATED PEST MANAGEMENT		JDE Sourcing principle 8.3
Score	4.4	
Law	<p>The Coffee Research Institute develops technologies, releases new coffee varieties, and carries out research on disease and pest management, while the Ministry of Agriculture, Livestock and Fisheries sets policy guidelines (ICO, 2019). The Kenyan pesticide industry is regulated by Chapter 346 of the Pest Control Products Act (PCPA) issued in 1985 (European parliament, 2021). The Plant Protection Act makes a provision for the prevention of pests destructive to plants (Ministry of agriculture, livestock, fisheries and cooperative, 2020). Kenya has developed the Pest Management Plan (PMP) in 2020 as part of the Kenya Climate Smart Agriculture Project (Ministry of agriculture, livestock, fisheries and cooperative, 2020). Management of pests and pesticides in Kenya is facilitated by many governmental and international organizations, including the Ministry of Agriculture, Livestock and Fisheries; Kenya Plant Health Inspectorate Service (KEPHIS) and Agro Chemical Association of Kenya (AAK) (Ministry of agriculture, livestock, fisheries and cooperative, 2020).</p>	
Evidence	<p>Coffeeberry disease (CBD) is endemic to Africa and was first recorded in western Kenya in 1922. In Kenya, it has been reported that CBD has led to infestation levels of 80% during the peak season causing significant losses in yield and quality (Tolessa, 2016). The high variation in pest abundance within the same agroecological zones (AEZ) indicates that other factors apart from elevation, such as agronomic practices, shade management, or natural enemies, influence the variability of the pest. As one of the agronomic practices, farmers use pruning to improve coffee yield and manage the pest (Azrag et al., 2018). Despite Kenya having a reasonably high number of registered biopesticide products, demand, and local availability for these was low, likely resulting in a negative feedback loop (Constatine, 2020). COSA (2021) found that 61% of farmers applies at least one out of the four IPM practices, only 12% applies at least two practices, and only 1% applies three IPM practices (COSA, 2021).</p>	
Prevailing expert opinion	<p>High risk: Expert estimates of the percentage of farmers in the coffee-producing regions applying Integrated Pest Management vary between <25 and >75%. However, most experts indicate that it is less than 25%. "IPM is a relatively new concept in the coffee sector and sometimes it's a bit hard to practice this 100% due to the elevation levels as well as drastic changes in climate" (Expert Survey, 2021).</p>	

BANNED PESTICIDES		JDE Sourcing principle 8.4
Score	3.4	
Law	Kenya ratified the Rotterdam Convention in 2005, and it sets out the procedure for Prior Informed Consent in the International Trade of hazardous chemicals and Pesticides. Kenya also has national policies in place regulating the use of pesticides. The Factories and other Places of Work Act (Hazardous Substance) Rules, 2007, gives Occupational Exposure Limits (OELs) for people exposed to hazardous substances (ILO). Apart from the two laws administered by the Directorate of Occupational Safety and Health Services, there are other legislations that touch on Occupational Safety and Health namely Public Health Act, Environmental Management and Coordination Act, Radiation Protection Act and Pest Control Product Act. The registration of pesticides in Kenya is governed by the Pest Control Products Act (1985). International regulations are unable to control the flow of dangerous products in Kenya, as pesticide manufacturers are still able to export goods to countries with weaker legislations from where they can find their way into the country (Route to Food, 2019).	
Evidence	The Kenyan pesticide regulation regime is widely seen as one of the most rigorous on the African continent and closest to global benchmarks (European Parliament, 2021). However, Kenya is also a major destination for pesticides that have been banned for use within the EU (European parliament, 2021). Despite European restrictions and interventions to use less hazardous products, some of the withdrawn pesticides are still in use in Kenya's agricultural sector. Kenyan consumers and farmers are not aware of the extent to which pesticides are used, their concentrations in food and environment and their possible effects on the environment and ecosystem services (Route to Food Whitepaper, 2019.) Only 20% of coffee farmers use chemical pesticides (COSA, 2021). COSA did not notice the application of highly hazardous pesticides in their samples (COSA, 2021). Moderately hazardous pesticides have been found in Kenyan coffee production (GMAP, 2017). Several non-conformities were found in UTZ audits between 2016-2020 (RA, 2020).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee producing regions, it is unlikely that banned pesticides are used. "Cooperatives and the management are the ones who does sourcing of chemicals. They know the right chemical to distribute to the farmer" (Expert Survey, 2021).	

INCOME DIVERSIFICATION		JDE Sourcing principle 9.1
Score	3.0	
Law	Diversification of income streams provides coffee farmers a buffer from losses due to fluctuations in coffee prices (ICO, 2015). There are efforts to encourage diversification, for example government's removal of rules that prohibited intercropping in coffee (Waireg et al., 2018).	
Evidence	Although intercropping in coffee can be beneficial (van Asten et al., 2011; and information on suitable intercropping practices is documented, farmers are discouraged by cooperative officials to apply intercropping (Waireg et al., 2018). Hence, presenting cooperative officials and farmers with evidence on the benefits of intercropping and information on suitable intercropping practices can contribute to improved crop diversification (Wambua et al., 2020). Haikizamani et al. (2017) found that coffee smallholder farmers often have a diversified portfolio of livelihood activities, including other cropping and livestock production activities as well as off-farm work. Relatively few farmers have access to well-paid skilled employment. Commercial coffee farmers in Meru grow other crops including maize, potato, beans, sweet potato, banana, nuts, and yams, keep livestock, and some are also involved in agro-forestry. All the commercial coffee farmers in this study have access to substantial off-farm income streams.	
Prevailing expert opinion	Medium-low risk: Expert estimates of the average percentage of the farmer's net income generated from coffee production vary between 20 and 80%. "Farmers have other activities ranging from livestock keeping, horticulture, banana growing, miraa, tea and off farm income" (Expert Survey, 2021).	