

# ORIGIN ISSUE ASSESSMENT

## GUATEMALA - COFFEE



Photo: Creagh Cross

Guatemala is the second-largest coffee producer in Central America after Honduras. Guatemala has increased Robusta production, but Arabica continues to dominate, making up more than 90% of total coffee produced. The coffee sector is a driver of the rural economy, providing incomes for over 125000 farmers, 98% of whom are smallholders (Anacafé, 2020). The Guatemalan coffee value chain generates half a million jobs in the rural economy, nearly 10% of the national active labor force (Bunn et al., 2019). During the 2019–2020 harvest of 2019–2020 approximately 3.19 million 60 kg bags of coffee beans were produced (Anacafé, 2020).

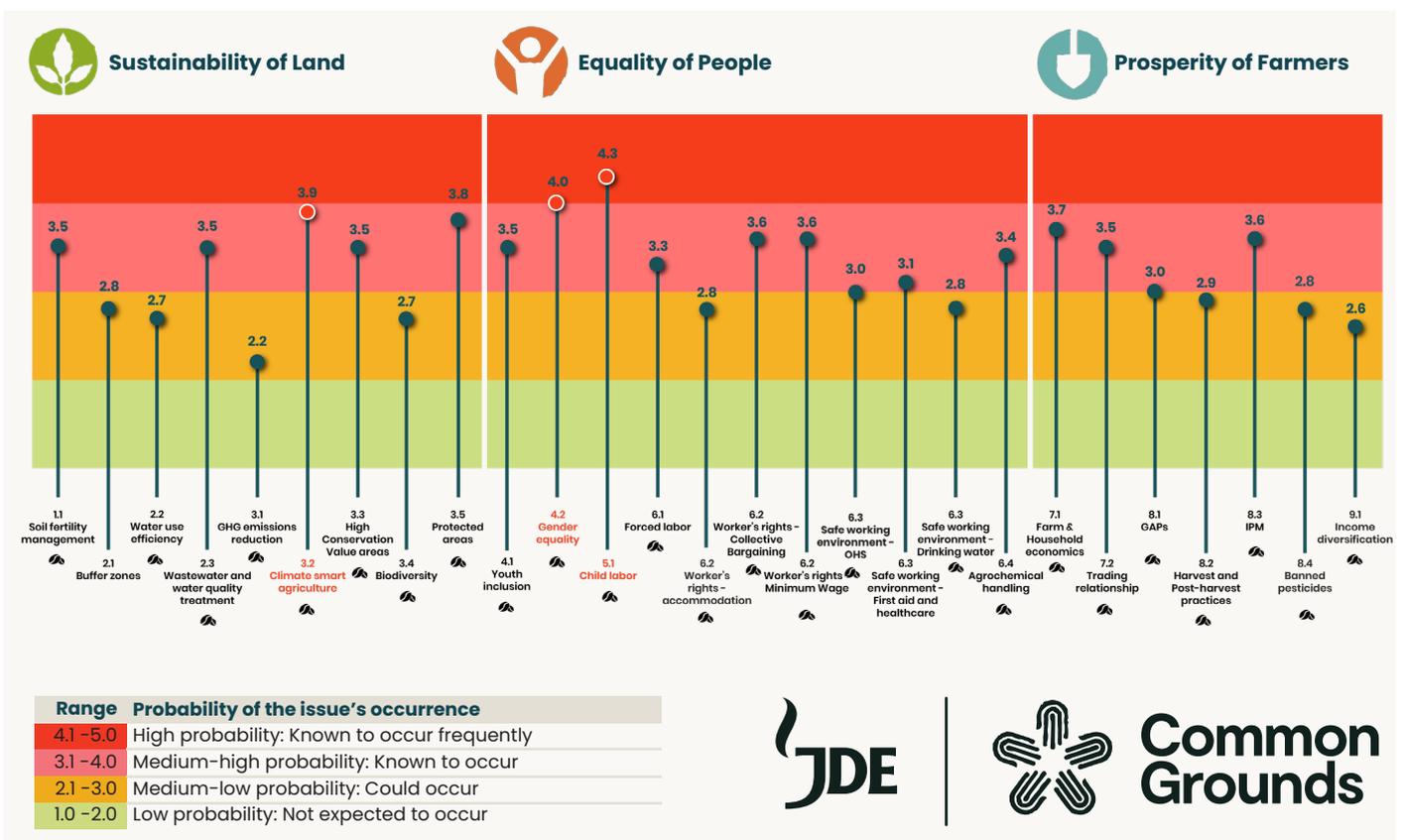
### TOP ISSUES

The top issues identified are:

- **Child Labor (risk score 4.3/5)**
- **Gender Equality (risk score 4.0/5)**
- **Climate Smart Agriculture (risk score 3.9/5)**

The lack of education, high poverty levels in coffee dependent communities and the compensation system of coffee farmers puts children at a high risk working before the legal minimum age at a coffee farm and missing school during harvest season (**Child Labor**). Coffee laborers get most often paid by the quantity of coffee picked therefore whole families, including children and spouses, work on the coffee plantations. While women help men harvest coffee they do not receive payment from the coffee farmer since men are generally the only workers who are registered with and paid by the coffee farmer (**Gender Equality**). Changing rainfall and rising temperatures affect the crops and the livelihoods of farmers in Guatemala's coffee-growing regions (**Climate Smart Agriculture**).

Further details per topic are provided in a separate annex.



**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](mailto: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.



SOIL FERTILITY MANAGEMENT		JDE Sourcing principle 1.1
Score	<b>3.5</b>	
Law	The government of Guatemala has approved international conventions on combatting soil degradation such as the Convention to Combat Desertification (CDD). In 1998, INRENA (the national focal point for the CCD) published a National Action Plan to Combat Desertification in Guatemala. Its main objectives include irrigation of small potentially arable lands, reforestation and forestation and controlling soil erosion (UN,1998; IUCN, 2014). UNDP has several projects with the aim to reforest degraded areas. Improved methods focus on soil conservation and crop intensification (UNDP, 2015; Climate Investment Fund 2017). UNDP’s interventions and projects are linked to the municipal and national plans (Climate Investment Fund 2017). The National Association of Coffee (ANACAFE) launched its Better Soil –Better Coffee platform, in which they provide technical support to coffee farmers on genetics, plant density, plant renovation and soil conservation (USAID, 2021).	
Evidence	Degradation of forests and soils is a growing concern in Guatemala (Climate Investment Fund, 2017). The Jalapa region, where some of Guatemala’s best-quality coffee is grown, suffers from soil erosion, but an agroforestry program is helping farmers combat this issue (National Geographic, 2020). According to FAO (2018) the number of soil and water conservation practices in the Guatemalan coffee sector is extremely low. Non-conformities regarding soil fertility management in the coffee sector were found and resolved during UTZ audits between 2016–2021 (RA, 2021).	
Prevailing expert opinion	Medium-high risk: In the coffee producing regions, some farmers manage their soil in an effective way. “Most of producers do not carry out adequate management of soil nutrition. Small producers approach a local agro-service and buy the cheapest available fertilizer, carry out the dosage based on the recommendation of the agronomist from the Agropecuária” (Expert Survey, 2021).	

BUFFER ZONES		JDE Sourcing principle 2.1
Score	<b>2.8</b>	
Law	The Ministry of Environment and Natural Resource (MARN) and Consejo Nacional de Areas Protegidas (CONAP) are the national governing bodies on matters of environment, habitats, wildlife, and biodiversity. The National Protected Areas regime is administered by CONAP. It declares protected areas and establishes a plan for each, which acts as the basis for concessions or contracts regarding any activity within the relevant areas (Gomez & Mendez, 2017).	
Evidence	With urbanization and consolidation of farming practices many regions of Guatemala have seen increased incidence of eutrophication caused by added agricultural runoff and raw sewage being dumped in rivers and lakes (Obrist-Farner et al., 2019; Kondash et al.,2021). Widely used approaches of riparian buffer zone management include fencing out livestock and forbidding agricultural activities along riverbanks. No non-conformities in UTZ audits regarding buffer zones in the coffee sector were found between 2016–2021(RA, 2021).	
Prevailing expert opinion	Medium-low risk: When looking at the country’s coffee producing regions, it remains contested whether farmers maintain a pesticide and fertilizer non-application zone or buffer zone. “Farmers that are not certified will not comply as they usually do not know about this standard”(Expert Survey, 2021).	

WATER USE EFFICIENCY		JDE Sourcing principle 2.2
Score	2.7	
Law	Several institutions are responsible for the management of water resources, including the Secretariat of Planning and Programming of the Presidency (SEGEPLAN), the technical secretariat of the National Council for Urban and Rural Development (CONADUR). According to MARN, the lack of a single regulator leads government agencies to duplicate efforts, reducing the state’s ability to effectively manage resources (Inter-American Development Bank, 2017). The new government’s Great National Agriculture and Livestock Plan 2016-2020 set out general lines of action for enhancing agricultural productivity and competitiveness of the agricultural sector, including expanding irrigated agriculture (MAGA, 2016). The National Irrigation Plan is implemented during Jimmy Morales’s presidency (2016-2020). The plan is meant to assist farmers after a prolonged heat wave (Media, 2019). The government must grant economic and fiscal incentives to replace water-intensive technologies with efficient ones (e.g., dry processing of coffee (Kondash et al.,2021).	
Evidence	Agriculture accounts for approximately 56.74% of the total water withdrawal in Guatemala (FAO AQUASTAT, 2018). The current irrigated area is just 29% of the 850,120 hectares that have been identified as having a good potential for irrigation (Inter-American Development Bank, 2017). The agricultural value added per agricultural water use in Guatemala is 12.9 USD/m3, ranking Guatemala 63rd out of 168 countries. The farming of coffee uses 2.6 million m3 water annually (Vargas, 2016). Most of the coffee farmers in Guatemala depend on rainfed agriculture, especially smallholder coffee producers (Specialty Coffee Association, 2020). Changes in rainfall therefore severely impact the coffee industry. Due to climate change, it is observed that a small portion of coffee producers are starting to use irrigation systems, mainly drip irrigation system. Drip irrigation systems are more efficient regarding the use of water and do not contribute to erosion (Bunn et al., 2019).	
Prevailing expert opinion	Medium-low risk: Water availability is an issue in the dry season. “Most coffee is not irrigated in Guatemala” (Expert Survey, 2021).	

WASTEWATER AND WATER QUALITY TREATMENT AT PROCESSING UNITS		JDE Sourcing principle 2.3
Score	3.5	
Law	The current legal framework on access to water and sanitation is mainly provided by Articles 93 and 97, and decree 236-2006 on Wastewater Discharge and Reuse and Sludge Disposal (Waterlex, 2018). The government has approved the National Water Law and a government agreement to implement better watershed management, improved water supply networks and better treatment of industrial effluents (WAVES, 2016). Policies on water quality and wastewater are drafted with little information on water users and needs. There also no national laws that cover the monitoring of wet mills across the country (CIAT, 2020). In order to prevent water pollution, the government must grant economic and fiscal incentives for responsible water management and restrain the discharge of untreated industrial wastes (Basterrechea & Guerra Noriega, 2019; Kondash et al.,2021).	
Evidence	At a national scale, wastewater treatment scores 6.8/100 on the Yale Environmental Performance Index (2020), indicating that almost no wastewater in the country is reported as treated. Only 3- 5% of residual water from economic activities receives wastewater treatment before its discharged directly into the environment (WAVES, 2016). Agro-industrial waste accounts for 47 % of total water pollution, making it the biggest pollutant source (The WAVES, 2016). The main crops grown by the larger Mestizo monocultures are grains, vegetables, and coffee, using inputs such as fertilizers and pesticides. These inputs have a direct negative impact on lake water quality when eventually drained into the lake, contributing to eutrophication and fish toxicity (Neher et al.) The UTZ audits between 2016-2021, found no non-conformities (RA, 2021).	
Prevailing expert opinion	Medium-low risk: Coffee is predominantly wet processed, though a mix of wet and dry processing occurs. When looking at the country’s coffee producing regions it is unlikely that, at processing units, wastewater is treated and is of decent quality before it is discharged into aquatic ecosystems or drainage systems. “ The wastewater treatment requires an investment for facilities, which is a challenge for small coffee farms. Medium and big certified producers usually have wastewater treatment facilities’ (Expert Survey, 2021).	

GHG EMISSIONS REDUCTION		JDE Sourcing principle 3.1
Score	<b>2.2</b>	
Law	<p>Guatemala’s Nationally Determined Contribution (NDC) calls for an increase in renewable electricity from 69% in 2014 to 80% by 2030 (NDC, 2015), in addition to bringing power to rural areas (Ministry of Energy and Mines), 2019). Related initiatives include a National Energy Plan with the goal of diversifying the energy generation mix (SEGE-PLAN, 2017). Guatemala also developed the Low Emissions Development Strategy (LEDS) to reduce greenhouse gas emissions while achieving the country’s economic, energy, and natural resource management priorities (GLEDS, 2018). The National Energy Policy 2019- 2050 aims to promote self-sufficiency through renewable energy. The Incentives for the Development of Renewable Energy Projects Act establishes tax, economic and administrative incentives for renewable energy generation (Reuters, 2021). Current Guatemalan policies favor large hydroelectric generation projects, but leave local communities displaced without power or a proper resettlement plan (Kondash et al.,2021).</p>	
Evidence	<p>While responsible for less than 0.1% of total global GHG emissions, Guatemala remains extremely vulnerable to climate change. In the first national communication to the UNFCCC (United Nations Framework Convention on Climate Change), issued in 2001, Guatemala highlighted the use of fossil fuels for electricity generation, and land use and forest activities as the two largest contributors to the country’s GHG emissions, together accounting for 90% of total emissions (Grantham Institute, 2015). In Guatemala the coffee farms are using shadow trees and these are often used as firewood (Thompson et al., 2019). Some individual coffee producers in Guatemala have developed solar dryers to reduce labor and emissions (Shapiro-Garza et al., 2019).</p>	
Prevailing expert opinion	<p>Medium-low risk: When looking at the country’s coffee-producing regions, it is likely that farmers use energy efficiently and use renewable energy sources. “Especially if biomass is considered a renewable natural resource, they use firewood of coffee and coffee shadow trees. They also use sunlight to dry coffee”(Expert Survey, 2021).</p>	

CLIMATE SMART AGRICULTURE		JDE Sourcing principle 3.2
Score	<b>3.9</b>	
Law	<p>The Government of Guatemala has developed various policies and interventions to diminish the impacts of climate change on agriculture and the environment, demonstrating a commitment to addressing vulnerabilities and risks to changing climatic conditions. The Ministry of Agriculture, Livestock, and Food (MAGA) established its own climate change strategic plan in line with national policies, which includes a framework for the Climate Change Unit of MAGA (CCU-MAGA) and links with strategies to address family farming and commercial farming (MAGA, 2013; Sain et al., 2017). ANACAFÉ has an Environmental and Climate Change Policy for the coffee Sector in Guatemala (ANACAFÉ, 2018). The Policy supports the management and implementation of tools to ensure environmental sustainability, improve climate adaptation along the value chain, as well as reduce the vulnerability of coffee producers. To support climate adaptation, ANACAFÉ created a national information system to reduce vulnerability and increase coffee productivity (OECD, 2021). ANACAFÉ also began installing weather stations in 2007, monitoring climatic conditions of the coffee zones in the country to improve climate adaptation decision-making in the sector (Romero, 2018).</p>	
Evidence	<p>Coffee pests and diseases, which are already trouble-some under the current climate, are aggravated by the effects of higher temperatures (Bouroncle et al., 2017). Coffee producing regions are increasingly experiencing changing weather patterns, which leaves them exposed to a combination of droughts, hurricanes and the El Niño phenomena are causing devastating impacts on communities (Germanwatch, 2020; Coffee Barometer, 2020). Guatemala’s small producers are particularly poorly equipped to combat the effects of climate change and the spread of crop disease. Farmers continue to be threatened with reduced yields, lower bean quality, diminished resilience, and increased production costs. One study found that a majority of coffee farmers (81%) have already perceived negative impacts from climate change while 41% have taken measures to combat or adapt to it (Viguera et al., 2019). Despite climate-smart agricultural practices such as planting trees, a general lack of risk-management strategies and livelihood diversification has the potential to drive rural coffee farmers in Guatemala out of business (Kondash et al, 2019).</p>	
Prevailing expert opinion	<p>Medium-high risk: Climate change has a negative impact on coffee production and farmers are not able to adapt quickly enough . “The use of new technologies is still under construction, there are initiatives and tools from Anacafé and other organizations to support the use of climate smart tools, however these still need to be shared and farmers need to be trained”(Expert Survey, 2021).</p>	

FOREST AND HIGH CONSERVATION VALUE AREAS (HCVS)		JDE Sourcing principle 3.3
Score	<b>3.5</b>	
Law	<p>The National Forest Action Plan provides institutional support for the development and assessment of forest-related laws (Grantham Institute, 2015). The country has signed an agreement with the World Bank’s Forest Carbon Partnership Facility (FCPF) that will unlock up to \$52.5 million for reducing emissions coming from deforestation and forest degradation and increasing carbon sequestration—commonly known as REDD+. This Emission Reductions Payment Agreement (ERPA) will reward efforts to reduce 10.5 million tons of carbon emissions by 2025 as part of Guatemala’s ambitious emissions reduction program (The World Bank, 2021). Recent forest incentives for the sustainable management of degraded forests and plantations, following the Law to Promote the Establishment, Recovery, Restoration, Management, Production and Forest Protection in Guatemala (PROBOSQUES). Through PROBOSQUES, the INAB aims at generating 900 000 rural jobs in forest protection and restoration, fostering the resilience of rural areas (Climate Investment Fund, 2017).</p>	
Evidence	<p>There is evidence that coffee expansion is contributing to deforestation in certain regions in Guatemala (Ganzenmuller et al., 2019; Marquardt et al., 2019) such as the Trifinio transboundary area of El Salvador, Guatemala, and Honduras (Schlesinger et al. 2017). The Chiapas Montane humid broadleaf forest in Western Guatemala has been threatened by the clearing of forest for coffee and other high-elevation crops (USAID, 2016). Bunn et al. (2019) studied the change in forest cover in Guatemala between 1990– 2015. Researchers found that the area under forest cover was reduced from 44% to 33% of the total land surface. Throughout this period the coffee area went through a contraction and expansion cycle. Especially in areas suitable for coffee, the expansion of this crop has been an important factor in forest loss. IFC biodiversity review confirmed that coffee production and sourcing in all origins are in consolidated agricultural lands and/or not located in recently deforested areas, although Guatemala, is considered “high-risk” for future deforestation (IFC, 2021).</p>	
Prevailing expert opinion	<p>Medium-high risk: When looking at the country’s coffee-producing regions, it remains contested whether farmers have converted High Conservation Value areas to agricultural production or other land uses since January 1st, 2014. “There has been effort to fight the conversion of HCV, however it could be possible that there are a cases, where HCVs are not respected” (Expert Survey, 2021).</p>	

NATURAL VEGETATION AND ON-FARM BIODIVERSITY		JDE Sourcing principle 3.4
Score	<b>2.7</b>	
Law	<p>Guatemala is part of the Convention on Biological Diversity (CDB), as well as the Cartagena and Nagoya Protocols. MARN and CONAP are the national governing bodies on matters related to the environment, habitats, wildlife, and biodiversity (Reuters, 2021). The lack of a fully functioning Sistema Guatemalteco de Áreas Protegidas (SIGAP) continues to result in increased deforestation, loss of biodiversity and unsustainable land uses throughout the country (CGIAR, 2013).</p>	
Evidence	<p>Coffee is traditionally grown in agroforestry therefore shade management is common on Guatemalan farms. According to Anacafé’s Green Book (2019) and USDA (2021), 98% of Guatemala’s coffee is shade-grown, which increases biodiversity. Coffee forests represent 7% of the national forest cover Guatemala (USDA, 2021). Guatemala has very fragmentary information on the existing plant species. Scarce information on the existing plant species and intensive agriculture have dramatically reduced forest cover in many areas. Bennet et al. (2018) reports that the proportion of coffee plantations managed with a diversified shade component has decreased steadily since the 1970s in Guatemala. In response to the intensification of coffee production, some conservation attention has shifted to land-sparing techniques that promote the retention of forest around full-sun coffee plantations rather than retaining shade trees within plantations.</p>	
Prevailing expert opinion	<p>Medium-low risk: When looking at the country’s coffee-producing regions, it is likely that farmers contribute to the preservation of native vegetation and on-farm biodiversity. “95% of national coffee production is under shade cover, so I can confirm that is very likely that farms keep conserving different species of trees and shade trees for production. Producers are aware that having diversity will bring a balance with the populations of insects, birds, fruits, weeds, and the general environment and microenvironments inside the coffee production areas” (Expert Survey, 2021).</p>	

PROTECTED AREAS		JDE Sourcing principle 3.5
Score	<b>3.8</b>	
Law	<p>In 1989, Guatemala passed the Law of Protected Areas (LAP). The LAP created the National Council for Protected Areas, whose legal function is stipulated by Decree 4-89. Increased pressure from international commodity markets, together with a lack of clear land tenure and ineffective enforcement against illegal land appropriation have led to large amounts of forest disturbance throughout the region (Bullock et al., 2019; PubMed). CONAP administers the National Protected Areas regime, declares protected areas, and establishes plans for each protected area (Thomson Reuters, 2021). The clearing of forests for agricultural purposes has been facilitated by weak governance, poor budgets, and scarce enforcement of protected areas (Media, 2020).</p>	
Evidence	<p>Guatemala has 352 protected areas. In total, the terrestrial protected area coverage is 20.12 % of which 10.49% are managed effectively (Protected Planet Index). Guatemala has seen increasing deforestation in the Laguna del Tigre, the country's largest national park, which has lost 30% of its forest cover since 2001. Due to weak protected area management, the expansion of subsistence agriculture and extensive cattle, deforestation continues occurring (Aguillar &amp; Velleda, 2017). Agricultural expansion for coffee, pasture, and other crop production has also been detected in the Trifinio region (Schlesinger et al., 2017).</p>	
Prevailing expert opinion	<p>Medium-high risk: When looking at the country's coffee producing regions, it remains contested whether coffee is produced or processed in protected areas or their designated buffer zones. "Unless under a certification scheme, it is not likely that farmers respect buffer zones, nor chemical non-application zones." (Expert Survey, 2021).</p>	

YOUTH INCLUSION		JDE Sourcing principle 4.1
Score	<b>3.5</b>	
Law	<p>The National Youth Council (CONJUVE), which is the "governing body of public youth policies" coordinates youth affairs across government, national and international institutions, and youth organizations. In addition, Guatemala has a "Youth Cabinet" which is comprised of representatives from each ministry to improve inter-ministerial coordination (Youth policy, 2014). While agricultural policies are beginning to recognize youth and their challenges in the sector, they are yet to identify clear strategies to engage youth in agriculture (IFPI, 2021).</p>	
Evidence	<p>The average age of coffee farmers is 55 years old and is steadily increasing. Many coffee families and their farms are in transition, handing over from one generation to the next (Specialty Coffee Association, 2018). Challenges such as high cost of production versus the low return of capital derived from international coffee prices and limited access to productive resources discourage young people from continuing (Media, 2020). This is expected to negatively affect the coffee sector in 20 years as current generations drop coffee production as their main source of economic activity (Canemark, et al., 2019). The youth population faces several key barriers to entering the formal labor market, mainly: access to land ownership for cultivation and a lack of new technologies and innovative strategies in production for youth to grow their skills (Media, 2020). There are several NGO interventions focused on adapting the school curriculum to be more relevant and useful for life in a coffee growing community by including modules on sustainable coffee, agriculture practices and helping youth develop their entrepreneurial skills (Hans Neuman R. Stiftung, 2018).</p>	
Prevailing expert opinion	<p>Medium-high risk: When looking at the country's coffee producing regions, it is unlikely that participation of young farmers is promoted. "There is effort from several organizations including Anacafé to promote coffee production among young people. However, there are other facts that could be getting more attention from youth" (Expert Survey, 2021).</p>	

GENDER EQUALITY		JDE Sourcing principle 4.2
Score	4.0	
Law	Guatemala has ratified the Discrimination (Employment and Occupation) Convention and the Convention on the Elimination of All forms of Discrimination against Women (United Nations Digital Library, 2017). The constitution prohibits discrimination based on gender, but women continue to face gender-based inequality; they are usually paid less for their labor than men, and sexual harassment in the workplace is not penalized (freedom House, 2020). In 2014, MAGA issued the Institutional Policy for Gender Equality and its Strategic Implementation Framework 2014–2023. The policy aims to integrate gender equality into the rural extension system, highlighting lines of action, goals, indicators, and specific responsibilities. So far, however, progress on MAGA’s Gender Equality Policy implementation has been limited, mainly because of a lack of institutional commitment to gender integration in institutional planning processes (USAID, 2018). Female workers are at risk of workplace violence and harassment since there is no explicit protection from harassment within the Labor Code (World Bank, 2021).	
Evidence	The Women’s Empowerment in Agriculture Index (WEAI) indicates that women’s empowerment in the Guatemalan agricultural industry is low (USAID, 2016). Men represent the majority of coffee sector workers and are generally registered and paid by the coffee farmer, while women and children do not usually receive payment from the coffee farmer for their harvesting activities. This in turn means that women lack access to the money earned through their labor as well as awareness about the terms of employment (Verité, 2016). In addition, women are rarely represented in coffee and cacao cooperatives, where crop ownership is mainly male (UNCTAD, 2019). In Guatemala, the share of female members of cooperatives is 10%. This is mainly due to land ownership being a condition of becoming a member of associations and cooperatives. This condition excludes most women. In other instances, they are discouraged from joining (USAID, 2018).	
Prevailing expert opinion	High risk: Women mostly do not have equal rights, responsibilities, and opportunities. “Women are still in charge of multiple domestic responsibilities in addition to subsistence agriculture, therefore their chances to have a leading role in coffee farming are restricted.” (Expert Survey, 2021).	

CHILD LABOR		JDE Sourcing principle 5.1
Score	4.3	
Law	Guatemala has ratified key conventions aiming to eradicate child labor. This includes the Worst Forms of Child Labor Convention and the UN (United Nations) Convention on the Rights of a Child among others (USDOL, 2020). Although laws exist to protect children from exploitation in the workplace, child labor persists (Danwatch, 2016). The law bars employment of minors below age 14, although it allows the Ministry of Labor to authorize children below age 14 to work in exceptional cases. The Ministry of Labor’s Child Worker Protection Unit is responsible for enforcing restrictions on child labor and educating minors, their parents, and employers on the rights of minors (USDOL, 2020). Although strong child labor laws, there is very little enforcement of these laws (USDOL, 2019).	
Evidence	The Rainforest Alliance Social Risk map attaches a high-risk level for the likelihood of child labor occurring in the coffee supply chain in Guatemala (RA, 2021). Evidence of actual child labor occurring has been reported by several NGO’s and institutions. Coffee is included on the US Department of Labor’s List of Goods Produced by Child Labor (USDOL, 2020). The lack of education and high poverty levels in coffee dependent communities puts children at high risk working at a coffee farm and missing school during harvest season. The lack of better alternatives leads to the undesired outcome of children working before the legal minimum age and/or youth who are of age but are engaging in hazardous activities (USDOL, 2019). Child labor is explained by many coffee laborers as the result of the compensation system for coffee picking. Coffee laborers are paid for the quantity of coffee they pick which explains why whole families, including children, work on the coffee plantations (Fairfood, 2020;).	
Prevailing expert opinion	Medium-high risk: Children (younger than 14/15) are working more than 14 hours a week on their parents’ farm, possibly resulting in children missing school at least a few weeks/more per year “There are several efforts, at the government and private level to eliminate child labor. “Historically, this is common practice in Guatemala. However, the labor of minors is observed mainly in the harvest season”(Expert Survey, 2021).	

FORCED LABOR		JDE Sourcing principle 6.1
Score	<b>3.3</b>	
Law	Guatemala has ratified the Forced Labor Convention and the Abolition of Forced Labor Convention (USDOS, 2019). The country ratified the Slavery Convention (1926), Protocol to the Slavery Convention (1953) and Forced Labor Convention (1930). Guatemala does not criminalize Forced Labor and Slavery as a distinct crime. The government initiated fewer investigations and prosecutions, achieved fewer convictions, and maintained insufficient specialized victim services given the scope of the problem in 2020 compared to 2019 (USAID, 2021). In addition, authorities did not increase efforts to combat forced labor, and corruption and complicity remained significant concerns (USAID, 2021).	
Evidence	The Global Slavery Index (2018) estimates that there are 47,000 modern slavery victims in Guatemala. The Risk Map of the Rainforest Alliance (RA, 2021) attaches a high risk score to the likelihood of forced labor occurring in the Guatemalan coffee sector. There are significant and credible reports of situations amounting to forced labor from two separate investigations from Verité and local press reports. Verité (2016) reported numerous signs of forced labor in Guatemala’s coffee plantations, such as false promises regarding terms of employment, induced indebtedness, non-payment of wages and withholding of identity papers (Verité, 2016). Experts have identified the coffee sector as one of the sectors that is at risk for the potential use of forced child labor (USAID, 2021). Coffee is not found in the 20201 USDOL list of goods produced by forced labor in Guatemala (USDOL, 2021.) There were no non-conformities regarding forced labor found and resolved in the UTZ audits between 2016-2021 in the coffee sector (RA,2021).	
Prevailing expert opinion	Medium-low risk: It is unlikely that forced labor happens in the country’s coffee producing regions. “There could be a few cases of forced labor, however the sector is working towards preventing this from not happening” (Expert Survey, 2021).	

WORKERS' RIGHTS AND DUTIES		JDE Sourcing principle 6.2
Highest score	3.6	
<b>ACCOMMODATION</b>		
Score	2.8	
Law	Guatemala has ratified the Convention 156: Workers with Family Responsibilities Convention (1981) in 1994. The country also has national legislation put in place regarding accommodation. Article 105 of the Constitution mandates that employers provide workers with adequate housing and stipulates that the government should support the design and construction of worker housing. Under Article 145 of the Labor Code, agricultural workers have the right to hygienic living conditions that meet health requirements.	
Evidence	Working and living conditions of coffee laborers are often deplorable, lacking basic living requirements such as clean water and healthy food and exposing them to pesticides (Perfecto et al, 2019). From the 241 workers on the coffee farms, 64.8 % of workers depended upon their employer for housing. None of the coffee workers interviewed by Verité (2016) reported being charged by their employer for housing. No non-conformities regarding provision of on-farm/nearby accommodation to workers and their families were found in the UTZ audits of 2016-2021 (RA, 2021).	
Prevailing expert opinion	Medium-low risk: Where accommodation is/ living quarters are provided, these are not necessarily safe, clean or decent." For conventional farms where there are no certifications involved, it is common to find not decent facilities for workers and families. It is common to not find toilets, kitchens, or individual beds to sleep in" (Expert Survey, 2021).	
<b>COLLECTIVE BARGAINING</b>		
Score	3.6	
Law	The constitution provides the right to peaceful assembly, and authorities generally respect this right (Freedom House, 2021). Guatemala has ratified international conventions that recognize freedom of association, the right to strike, and collective bargaining (Ahmad, 2020). The Ministry of Labor and the labor courts, did not effectively investigate, prosecute, or punish employers who violated freedom of association and collective bargaining laws or reinstate workers illegally dismissed for engaging in union activities. Inspectors frequently fail to take effective action to gain access to worksites to investigate worker complaints (USDOS, 2017).	
Evidence	The ITUC Global Rights Index (2020) finds that systematic violations of rights take place in Guatemala. The Social Hotspot Database also classifies the overall risk of freedom of association for the Guatemalan crop sector as very high (4/4). Part of the problem regarding labor law violations has to do with the lack of ability for workers on farms to form labor unions, which would enable them to fight for their own rights. Due to corruption in government labor departments and corruption among owners of coffee plantations, laborers have been blocked from being able to create unions (Wright, 2016). Despite national laws claiming the right to form and join a union, coffee workers find it nearly impossible to organize or complain of harsh conditions on the plantations (Danwatch, 2016).	
Prevailing expert opinion	Medium-high risk: When looking at the country's coffee-producing regions, it is unlikely 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. "There are some farms where this could be happening, collective bargaining is less probable because there is a national law that states minimum wages that are generally accepted by all the sectors. Some workers accept their salaries and minimum wages but is not common that they have collective bargaining" (Expert Survey, 2021).	
<b>MINIMUM WAGE</b>		
Score	3.6	
Law	Guatemala has ratified the Protection of Wages Convention and the Equal Remuneration Convention, but not the Minimum Wage Fixing Convention (ILO). The minimum wage is set by the National Wage Commission. There is no national minimum wage, as it varies by sector. The Executive sets the minimum wage rate for private sector workers in an accord with the Ministry of Labor and Social Welfare, based on the report of the National Wage Commission. The General Inspectorate of Labor ensures compliance with labor laws including payments of minimum wages. In case of violation of labor or social security provisions such as wages, this may result in fines (Ahmad, 2021). In the informal rural economy, young men and women earn half of the minimum national wage. To address this challenge, the FAO has made efforts to contribute to the implementation of Guatemala's National Decent Work Policy (FAO, 2017).	
Evidence	Guatemala is generally considered one of the 'worst violators of labor rights in the world today. Although the law provides for a minimum wage, many coffee plantations still do not pay the minimum wage to their regular workers or seasonal and migrant workers(Chen, 2020). Wages and working conditions are poor for laborer's, often disregarding minimum wage standards (Oxfam, 2020). Guatemala is among the countries feeling the hardest squeeze from low-cost entrants into the coffee market. As a result of high production costs and low yields, producers' income from coffee farming is lower than elsewhere in Latin America. Farming coffee currently generates less income than a job paying minimum wage (Cortes et al., 2021).	
Prevailing expert opinion	Medium-low risk: Most of the workers are paid the minimum wage; part of the workers is paid less than the minimum wage. " The issue is that in Guatemala a coffee worker can be either paid by weight or by the hour. This does not mean that the worker receives the minimum wage" (Expert survey, 2021).	

**SAFE WORKING ENVIRONMENT** JDE Sourcing principle 6.3

Highest score	<b>3.1</b>
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**OCCUPATIONAL HEALTH SAFETY**

Score	<b>3.0</b>	
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Law	Of the 189 ILO Conventions, only 13 are relevant to Occupational Health and Safety (OHS) and Guatemala has only ratified five (38.5%) (Alvarez & Guzman-Quilo, 2018). Regarding OHS regulations related to agriculture, Guatemala has not yet ratified the ILO's Safety and Health in Agriculture Convention (Convention 184) or the Promotional Framework for Safety and Health Convention (Convention 187) (Verité, 2017). The Guatemalan Labor Code, Decree No.1441 (2017) requires employers to take all precautionary measures to protect the life, safety, and health of employees and to provide a healthy work environment (Verité, 2017; Wage Indicator Foundation, 2021). A 1990 Government Accord addresses worker health and safety and equipment maintenance (Verité, 2017). Article 198 obligates employers to comply with measures laid out by the Instituto Guatemalteco de Seguridad Social (IGSS) to prevent occupational accidents and illnesses.
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Evidence	Guatemalans of low socioeconomic status receive little health education and have limited access to health care (Bartlett, 2021). The coffee industry does not demonstrate a clear commitment to the rule of law, especially regarding legally established health and safety programs, education services and hygienic living conditions (Converco, 2015). According to Verité (2016), 10.5 % of the 372 workers interviewed reported getting sick or hurt during their work on the coffee farm. 2.7% of all workers interviewed reported receiving medical attention. No non-conformities were found in the coffee sector in UTZ audits between 2016-2021 (RA, 2021).
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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, and that adequate steps are taken to prevent work-related injuries. "There are many places that already take care precautions. However the situation is still not completely fine but with continuing support, it can probably change in the upcoming years" (Expert Survey, 2021).
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**FIRST AID AND EMERGENCY HEALTHCARE**

Score	<b>3.1</b>
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Law	In Guatemala, the constitution guarantees free government-sponsored health care to all citizens (Ippolito et al., 2017). Article 197 of the Labor Code mandates that companies must maintain a first aid kit. The Government Accord (1957) establishes businesses' responsibility to maintain a first aid kit (Verité, 2017). The Guatemalan Ministry of Health (MOH) offers care through a three-tiered public health system, which includes (1) health posts providing basic primary care and vaccinations in rural villages, (2) health centers providing basic primary care, and (3) some emergency services in towns, small cities and hospitals providing specialized care and emergency services (Ippolito et al., 2017).
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Evidence	While the three-tier system is designed to offer health care coverage to approximately 70% of the population, understaffing and resource shortfalls limit the availability of services as well as actual population coverage (Ippolito et al., 2017). Most healthcare facilities are in major cities, distant from almost half of the population (49.32%) that lives in rural areas (World Bank, 2018; Ezeonwu, 2020). Only 3% of agricultural workers interviewed in the CODECA study indicated that their farm provided a first aid kit. Nearly 80% of agricultural workers reported that workers injured on farms were not transported to an IGSS hospital or other healthcare centers (Verité, 2017).
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Prevailing expert opinion	Medium-high risk: When looking at the country's coffee-producing regions, it remains contested whether workers receive first aid and emergency health care for treatment of work-related injuries. "When staying at large farms during coffee harvest it is usually the case that the farmer provides a first-aid kit and emergency care. However outside the harvest season it is a different situation" (Expert Survey, 2021).
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**DRINKING WATER**

Score	<b>2.8</b>	
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Law	Guatemala's constitution has several provisions that provide for or implicate the right to clean and safe water. Guatemala is one of the two countries in Central America to not to have proper a legislation in place to protect the rights to water access and the regulates of water usage (Burnett-Stuart, 2017). A key goal of Guatemala's Water and Sanitation National Policy is to increase water and sanitation coverage to 95% by 2025 (SEGEPLAN, 2013; Inter-American Development Bank, 2017). Guatemala is close to reaching that objective as 92.8% of total population has access to safe drinking water. There is still some progress needed in the rural area where only 86.8% of the rural population has access to safe drinking water (FAO AQUASTAT, 2018).
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Evidence	The disparity in access to improved drinking water and sanitation between geographical areas is evident, and the rural population remains disproportionately disadvantaged (The World Bank, 2018).
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Prevailing expert opinion	Coffee laborers often lack basic living requirements such as clean water (Perfecto et al., 2019). According to a study conducted by FAO (2020), 52% of households working on coffee farms had access to safe drinking water while a study done by Verité (2016) found that 32% of coffee workers lacked the provision of drinking water. Medium-low risk: When looking at the country's coffee-producing regions, it is likely that workers have convenient access to safe drinking water. "There is a requirement for farmers to provide safe drinking water to workers, but since there is no access to safe drinking water in general in the entire country, it's difficult for farmers" (Expert Survey, 2021).
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AGROCHEMICAL HANDLING		JDE Sourcing principle 6.4
Score	<b>3.4</b>	
Law	Guatemala has not ratified the Safety and Health in Agriculture Convention (ILO). However, under the Guatemalan Labor Code (2017) the employer is under an obligation to prevent accidents and occupational hazards by providing appropriate clothes and personal protective equipment, when and where necessary (Ahmad, 2021). Article 197 of the Labor Code requires companies to provide appropriate personal protective items and provides a list of PPE (Personal Protective Equipment) items to be provided to workers according to the type of work they perform (Verité, 2017).	
Evidence	The working conditions of coffee laborer’s leaves them exposed to pesticides (Perfecto, 2019). Many indigenous farmworkers in Guatemala are more susceptible to the health effects from pesticides as it is difficult to provide them with health and safety training due to their limited knowledge of pesticides and its impact on their health (Reorh, 2019). Several non-conformities were found and resolved in the coffee sector during UTZ audits between 2016-2021 (RA, 2021).	
Prevailing expert opinion	Medium-high risk: When looking at the country’s coffee-producing regions, it is unlikely that agrochemicals are handled in the right way. “Larger farms are more advanced in this area compared to small farms, regarding the correct use of PPE. It is still necessary that workers have protective equipment and safe usage training” (Expert Survey, 2021).	

FARM & HOUSEHOLD ECONOMICS		JDE Sourcing principle 7.1
Score	<b>3.7</b>	
Law	Guatemala has established several programs that target financial assistance and improving business skills of coffee farmers. The Expo Café, an initiative of MAGA, promotes entrepreneurship by providing coffee farmers with training on business, commercial and organizational management (Bunn et al., 2019). A group of Guatemalan coffee producers have teamed up with Anacafé to trial new ways to shorten the supply chain between roasters and farmers. The pilot project aims to enable farmers to obtain a higher value for their coffee while giving roasters an opportunity to obtain directly traded coffee from select farms at a lower cost (Media, 2019).	
Evidence	Smallholder coffee farmers have limited if any access to credit since they have no security to offer a bank or cooperative. Several smallholders were forced to abandon their plantations for lack of government financial assistance. The government financial assistance enables them to cover the cost of necessary pest control products to improve their crop yields (FEWS, 2016). Cooperatives in Guatemala have a reputation for not being strong or popular, however Guatemalan farmers selling via intermediaries receiving approximately 70-85% of export price (Romero, 2018). From 2007 to 2016, Guatemalan coffee producers obtained 87% of the value listed on the Free-on-Board price. In one study it was found that 64% of smallholder coffee farmers feared that prices in the markets will decrease further as a result of COVID-19. 71% indicate that they already see a negative impact on household income (HRNS, 2020).	
Prevailing expert opinion	Medium-high risk: Most coffee farmers are not sufficiently aware of the farm and household economics. “Most small farmers don’t do any bookkeeping and struggle with income and costs. Large farmers perform well” (Expert Survey, 2021).	

TRADING RELATIONSHIPS		JDE Sourcing principle 7.2
Score	<b>3.5</b>	
Law	<p>Despite the importance of the National Association of Coffee (ANACAFÉ) in the country, the business structure of coffee production in Guatemala is not as developed as in other neighboring countries due to issues of trust and history. ANACAFÉ was created with the aim of cooperating with the Government of Guatemala to protect the national economy in relation to coffee production and commercialization. It is a private, public-service institution which represents the national coffee producing sector, promotes coffee abroad, issues export licenses and shipping permits, sets minimum prices, and verifies coffee quality (Romero, 2018). In 2013, the Legislative Decree 12-2013 assigned the Ministry of Agriculture as the responsible entity to secure the adequate use of the trust fund, which can be used to buy agricultural inputs and offer credits to farmers with a 2% annual interest rate for small and medium-sized coffee farmers vs3% for big producers (USAID, 2021).</p>	
Evidence	<p>Smallholder coffee farmers identified financial capital as necessary to purchase agricultural inputs, hire technical assistance, and transport crops to market, with the primary financial barrier being lack of access to credit. Coffee requires several years of growth before bearing fruit, requiring that farmers find a substitute income during the lag in production (Shapiro-Garza, 2020).</p>	
Prevailing expert opinion	<p>Medium-high 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, but it is unlikely that coffee sourcing companies facilitate farmers to access services, such as credit and market information." Information on markets, access to credits is not likely to be shared with farmers as this undermines the business case of exporters/traders. This fosters a certain dependence of farmers (Expert Survey, 2021).</p>	

GOOD AGRICULTURAL PRACTICES		JDE Sourcing principle 8.1
Score	<b>3.0</b>	
Law	<p>FAO has supported the design of the Strategic Plan for Climate Change of the Ministry of Agriculture, Livestock and Food (MAGA) 2018-2027 and Action Plan 2018-2022 which identifies four strategic lines: promotion of the use of good agricultural practices, science and technology transfer for adaptation, recovery of ancestral knowledge and harvesting and sustainable use of water resources (FAO, 2020). ANACAFE donated 5.6 million seedlings to 126 farmer organizations, composed of 3,257 coffee farmers who renovated 1,867 Ha (USAID, 2020).</p>	
Evidence	<p>Bunn et al. (2018) indicate that replantation on Guatemalan coffee farms will not represent a problem for aging plants over the next decade since 65% of plantations are less than 9 years old. Coffee yields and quality in the Alta Verapaz region were quite low due to limited knowledge in good agricultural practices and the application of agricultural inputs (ICP, 2017). According to a study conducted by FAO (2020), 87% of coffee growing households practiced shade management and/or pruning. Farmers indicated shade management as the most important measure to sustain coffee productivity (FAO, 2020). According to a survey (HRNS, 2020) conducted in several countries including Guatemala, the biggest impact of COVID-19 on agricultural activities according to coffee farmers are on fertilization (51%), pruning of trees (37%), use of agrochemicals (33%) and planting or rejuvenation (26%).</p>	
Prevailing expert opinion	<p>Medium-high risk: Most experts estimate that 25-50% farmers in the coffee-producing regions use good agricultural practices." NGO's and ANACAFE provide training in localized coffee regions, but not all farmers have access to technical assistance or training from them. That is why we are still missing GAPs (Good Agricultural Practices) in high percentages on coffee farms' (Expert Survey, 2021).</p>	

HARVEST AND POST-HARVEST PRACTICES		JDE Sourcing principle 8.2
Score	<b>2.9</b>	
Law	The Global Food Security Strategy (GFSS) Country Plan for Guatemala will include interventions focused on improved technologies in production, harvesting, storage and quality control of several important crops (USAID, 2018). The Center Research on Coffee (Cedicafé) aims to increase coffee profitability in the face of adverse circumstances by investing in field-experimentation of innovative approaches, improved agronomic practices, post-harvest processing, and mechanization (Bunn et al., 2019).	
Evidence	The coffee cherry in Guatemala is commonly handpicked and sun-dried except for humid regions where coffee beans are partly dried with electric dryers owned by cooperatives and pulped on-farm or at cooperative-owned facilities (Solymosi & Techel, 2019; Vetite, 2016). Furthermore, 98% of Guatemalan coffee is washed at centralized wet mills or independent washing stations. Generally, medium, and large coffee farms have their own processing plants and transportation infrastructure. This allows them to process and transport their coffee within short periods of time (Verité, 2016). The coffee yields and quality of smallholder farmers in the Alta Verapaz region were quite low as a result of limited knowledge in harvesting and processing techniques. The processing infrastructure and transport infrastructure for washed coffee at cooperative level is in bad condition (International Coffee Partners, 2017). UTZ audits between 2016-2021 have found and resolved non-conformities in the coffee sector (RA, 2021).	
Prevailing expert opinion	Medium-low risk: Expert estimates of the percentage of farmers in the coffee producing regions implementing good harvest and post-harvest practices vary between 50 and 75%. " There are good efforts to improve these practices, mainly as a reason to improve quality" (Expert Survey, 2021).	

INTEGRATED PEST MANAGEMENT		JDE Sourcing principle 8.3
Score	<b>3.6</b>	
Law	The Legislative Decree 12-2013 assigns the Ministry of Agriculture of Guatemala as the responsible entity to secure the adequate use of the trust fund, which can be used to buy agricultural inputs, mainly fungicides to combat coffee rust, and fertilizers (USAID, 2019). In addition, ANACAFE recently launched its Better Soil –Better Coffee platform, which is a nutritional program based on a soil chemical analysis. ANACAFE also provides technical support to coffee farmers on plant renovation, soil conservation, shade management, integrated pest, and disease management (USAID, 2021).	
Evidence	Coffee producers have their own threshold of when to use systemic fungicides but most choose to use them when infection spreads to levels of 10 to 20%. There have been attempts to create organic treatments and fungicides without much success (Media, 2019). Most coffee growers in FAO's project areas implement integrated pest management measures (including shade management, fertilization and chemical control) to control the rust infestation (Chocooj & Morales, 2017). However, the lack of proper techniques limits the possibility to efficiently reduce the damage caused by diseases. Smallholder farmers in the western highlands of Guatemala who previously produced organic coffee under diversified, dense shade, have recently switched to resistant varieties and started applying synthetic fertilizers and pesticides in an attempt to control pests and diseases and increase yields (Bielecki & Wingenbach, 2019; Harvey et al., 2021). This might also be because some Guatemalan coffee farmers confuse nutritional deficiencies with pests such as the red spider mite, as both cause the coffee leaves to turn brown (Finley-Lezcano, King & Wang, 2016).	
Prevailing expert opinion	Medium-high risk: Expert estimates of the percentage of farmers in the coffee producing regions applying Integrated Pest Management vary between 25 and 50%." On average, a farmer weeds manually at least once per year, however, most farmers prefer the more cost-effective solution of spraying herbicides. Nearly all farmers use fungicides to prevent or control leaf rust, compared to only two-thirds of their regional peers" (Expert Survey, 2021).	

BANNED PESTICIDES		JDE Sourcing principle 8.4
Score	<b>2.8</b>	
Law	For non-pesticide PTSs, there is little registration and regulation of import, export, and use, except for the Rotterdam and Basel Conventions (Ministry of Environment and Natural resources, 2009). There are no Guatemalan standards for tolerance levels of pesticides in food products, but VISAR maintains a list of pesticides that are not permitted in Guatemala (USAID, 2021). More than 120 government parties to the Rotterdam Convention support the listing of paraquat (20%) as a severely hazardous pesticide formulation in Annex III of the Rotterdam Convention. However, at the 6th Conference of Parties in 2013, Guatemala together with India opposed the listing paraquat as a banned pesticide (The New York times, 2016).	
Evidence	A mixture of copper sulphate and hydrated calcium is commonly used by Guatemalan coffee farmer, also referred to as Bordeaux mixture or Bordo Mix (Media, 2019). Coffee workers apply chemicals like the herbicide paraquat, which is illegal in the European Union because of its extreme toxicity (Danwatch, 2016). This is because many chemical companies are predicated on keeping their products legal outside the Continent. Britain has exported paraquat to many developing countries including Guatemala (The New York Times, 2016), even though paraquat is banned in the UK and EU. Endosulfan has been banned worldwide by more than 120 countries under the Stockholm Convention on Persistent Organic Pollutants. In Guatemala, some coffee producers rely on endosulfan to control the Coffee Berry Borer (CBB) (Bacon & Rice, 2015). Numerous cases of poisoning of animals, insects, and aquatic flora and fauna, and many cases of human poisoning including deaths, with endosulfan have been reported from Guatemala (Kurup et al., 2017). Several non-conformities were found and resolved in the coffee sector during UTZ audits between 2016-2021 (RA, 2021).	
Prevailing expert opinion	Medium-low risk: When looking at the country's coffee-producing regions, it is unlikely that banned pesticides are used. "The use of banned pesticides is well controlled by the government and local authorities (certification and sustainability programs also act as drivers)" (Expert Survey, 2021).	

INCOME DIVERSIFICATION		JDE Sourcing principle 9.1
Score	<b>2.6</b>	
Law	In Guatemala, a trust fund was authorized by the Congress with the support of the federal government to finance producers for the diversification out of coffee. FEDECOCAGUA USAID set up a project with USAID to run from 2017-2022. The objective of this project is to reduce poverty through increased agricultural incomes and improved resilience of small farmers. More specifically, the activity seeks to improve agricultural productivity, diversify income generation alternatives, expand access to markets, and increase resilience through implementation of climate-smart nutrition sensitive agriculture (USAID, 2020).	
Evidence	Coffee production losses affect growers who depend directly on coffee, such as coffee plantation owners. For producers, revenues are reduced by losses, and since their coffee plantations are not diversified, they incur high financial risk as they depend on a single product (FAO,2020). Out of necessity to generate a decent income, 78% of the Guatemalan coffee farmers produce other agricultural goods besides coffee (Media, 2018). Some of the coffee farms in the lower lands are intercropping or shifting to banana and citrus, and in areas like the Verapaces, cardamom is one of the main options for diversification (USAID, 2021). Many coffee farmers are joining cooperatives and diversifying their sources of income by growing additional crops such as avocados and nuts (Technoserve, 2019). Honey is another potential diversification option that has been promoted through past rural development schemes and is now being produced by some farmers (CGIAR, 2016).	
Prevailing expert opinion	Medium-high risk: Expert estimates of the average percentage of the farmer's net income generated from coffee production vary between 50 and 85%. "I estimate that for approximately 70% of Guatemalan producers, coffee is the only income source. Some other income resources are other crops, temporary jobs, and remittances coming from the U.S." (Expert Survey, 2021).	