

ORIGIN ISSUE ASSESSMENT INDONESIA - COFFEE



Photo: JDE

Indonesia ranks fourth in global coffee production and third in total Robusta production (USDA, 2021). The country grows 80% Robusta and 20% Arabica coffee (GCP, 2019). Robusta coffee is mainly produced in Southern Sumatra (Solymosi & Techel, 2019), and Arabica coffee in Northern Sumatra. Other coffee growing areas include Java, Sulawesi, Flores, and the Bali islands (Statista, 2021). There are an estimated 1.8 million smallholder coffee farmers in Indonesia (GCP, 2019), and coffee farms averaging between 1-2 hectares account for 98% of all coffee growing area (USDA, 2019).

TOP ISSUES

The top issues identified are:

- **Soil Fertility Management (risk score 3.7/5)**
- **Harvest and Post-Harvest Practices (risk score 3.7/5)**
- **Forest & High Conservation Value Areas (risk score 3.6/5)**
- **Gender Equality (risk score 3.6/5)**

On Indonesian coffee farms, soil fertility is not adequately addressed. Farmers lack knowledge on soil management and organic matter is decreasing. In some cases, the overuse of agrochemical inputs is harming the soil quality (**Soil Fertility Management**). Coffee farmers harvest without differentiating the level of fruit maturity; as a result coffee quality is low and inconsistent (**Harvest and Post-Harvest Practices**). A lack of incentives to encourage farmers to invest more time and resources into harvest and post-harvest practices is observed. Moreover, there is a risk of deforestation caused by coffee production (**Forest & High Conservation Value Areas**). The government has little capacity to control encroachment into conservation areas. Training, subsidies, and cooperatives are more difficult to access for women than men (**Gender Equality**). Women are burdened with the stereotype of having to look after children and the household. Decision-making in coffee is mostly done by male family members. Land is usually registered under the husband's name.

Further details per topic are provided in a separate annex.



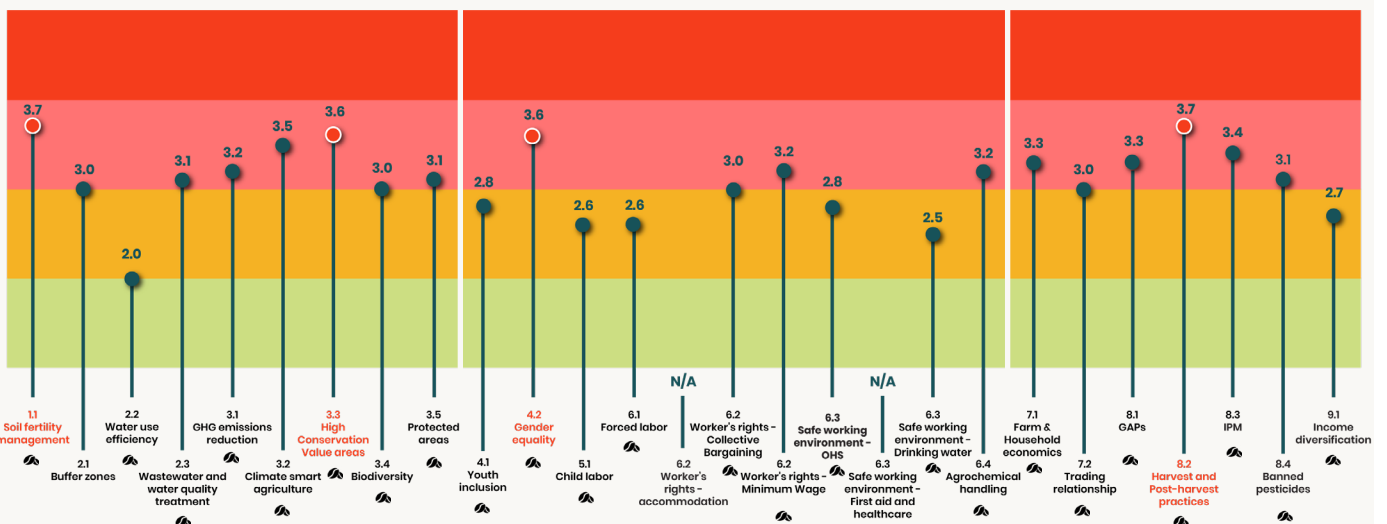
Sustainability of Land



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 |




Common Grounds

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.





| SOIL FERTILITY MANAGEMENT | | JDE Sourcing principle 1.1 |
|---------------------------|---|---|
| Score | 3.7 |  |
| Law | Indonesia ratified the United Nations Convention to Combat Desertification (UN Treaty Collection). A law on soil and water conservation aims to protect the soil surface from the erosion of falling rainwater, increase the soil infiltration capacity, and prevent the occurrence of surface erosion (FAO, 2014). Various government efforts have identified and addressed the issue of land degradation on agricultural land (Sitorus & Pravitasari, 2017). However, the results from these efforts remain unsatisfactory. | |
| Evidence | Due to its tropical climate, Indonesia is prone to downpours creating a high risk for erosion (WRI, 2020; ADB, 2016). In the agricultural area, land degradation is a serious problem due to excessive rainfalls, slash-and-burn practices/ deforestation, and chemical damage (Sitorus & Pravitasari, 2017, WAC, 2015). About 70% of agricultural soils in Indonesia have a low organic content (Simarmata et al., 2020). Research by Sari & Nugroho (2016) finds that soils across Robusta coffee plantations in the Jember district possess a low organic carbon content. Also, evidence from Arabica coffee farms in North Sumatra shows how declining yields are caused by low soil fertility (Marbun et al., 2020). Despite these issues, on-farm soil fertility management is enhanced by intercropping coffee with shade trees, a common practice on Indonesian coffee farms (Iskandar et al., 2018). Several non-conformities regarding soil fertility management were found in UTZ audits between 2016-2020 (RA, 2020). | |
| Prevailing expert opinion | Medium-high risk: In the coffee-producing regions, some farmers do not know how to manage their soils, organic matter is decreasing, soil erosion is commonplace, and nutrients are wasted. "Organic matter is decreasing due to the majority of farmers not applying enough shade trees on their coffee farms." "Some use toxic chemicals to destroy pests and weeds that are harmful to the soil." However, "the use of chemical fertilizer is not a big problem due to low input". One expert also emphasizes that in Southern Sumatra "nutrients are not wasted, instead, farmers are applying very minimum (no) fertilizers" (Expert survey, 2021). | |


| BUFFER ZONES | | JDE Sourcing principle 2.1 |
|---------------------------|--|----------------------------|
| Score | 3.0 | |
| Law | The Indonesian government banned the usage of certain Coffee Berry Borer pesticides to prevent environmental harm due to run-off (Mercanta, 2021). However, information on the release of chemicals to the environment is scarce (OECD, 2019). Although in theory all pesticides are tested by the Department of Agriculture's Pesticide Commission, local government officials and law enforcement officers have little knowledge on these publications or of regulations relating to pesticide use and disposal (IRIP, 2003). | |
| Evidence | Evidence highlights that the application of pesticides on agricultural land in Indonesia negatively affects nearby water streams (ABN, 2016). Gustinasari et al. (2019) observe a high pesticide concentration in the river nearby the examined agricultural fields in Malang City. Moreover, pesticide runoff has been found to cause substantial aquatic risks (Utami et al., 2021). With pesticide use increasing each year, the risk of contamination of water sources also increases (Setyanto, 2015). Non-conformities regarding buffer zones 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 farmers maintain a pesticide and fertilizer non-application zone or buffer zone. "In traditional communities, organic type of farming is practiced with little external inputs". Nevertheless, "farmers' knowledge on the importance of buffer zones is limited unless they are enrolled in targeted company programs of certification schemes" (Expert survey, 2021). | |


| WATER USE EFFICIENCY | | JDE Sourcing principle 2.2 |
|---------------------------|--|---|
| Score | 2.0 |  |
| Law | In 2004, Indonesia's government ratified a law on water resources management to address water-related problems and structural deficiencies (WWF Water Quality Index). The Water Resources Sector Plan (2015-2019) aimed to improve irrigation systems, increase water storage and improve water quality (FAO, 2017). The government continues to invest in irrigation infrastructure (OECD, 2020). However, irrigation departments proved inadequate in partnering with farmers (Alaerts, 2020). | |
| Evidence | Indonesia is rich in water resources and therefore has low water stress (OECD, 2019). Water withdrawal for agriculture accounts for about 85% of total water extractions (OECD, 2020). However, most agriculture remains rainfed with only 17-20% relying on irrigation (ADB, 2016). The same is observed in the coffee sector with most coffee-growing area being unirrigated (USDA, 2019). No non-conformities regarding water use efficiency were found in UTZ audits between 2016-2020 (RA, 2020). | |
| Prevailing expert opinion | Low risk: Water availability is an issue in the dry season. "Farmers tend to rely on rainwater for irrigation." "For small-holder farmers, only 25% provide irrigation during the dry season" (Expert survey, 2021). | |


| WASTEWATER AND WATER QUALITY TREATMENT AT PROCESSING UNITS | | JDE Sourcing principle 2.3 |
|--|---|---|
| Score | 3.1 |  |
| Law | In the law on Environmental Protection and Management (2009), the Indonesian government lays out the details of wastewater quality and management standards and requirements (WIPO GREEN, 2016). Government Regulation No. 82/2001 on Water Pollution Control establishes a general framework for water quality standards which includes the regulation of wastewater discharge permits (OECD, 2019). However, due to the lack of coordination between administrative levels, water treatment requirements are set arbitrarily (OECD, 2019). Also, a lack of funding for wastewater treatment facilities is observed (ARCOWA, 2018). | |
| Evidence | In Indonesia it is common that municipal and industrial wastewater is discharged untreated into waterways, negatively affecting the river water quality (WWF Water Quality Index). Overall, the wastewater infrastructure is underdeveloped (OECD, 2019). GMAP highlights a very high water footprint for Indonesian coffee production, especially when considering the grey water component. Among Arabica coffee wet processing is more common where specific equipment and substantial quantities of water are needed. However, the dry process method is generally used for Robusta coffee in Indonesia which does not rely on water use (Novita, 2016). As 80% of Indonesia's coffee is Robusta most coffee is processed using minimal water quantities. No non-conformities regarding wastewater and water quality treatment at processing units 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, at processing units, wastewater is treated and is of good quality before it is discharged into aquatic ecosystems or drainage systems. "For Robusta coffee the dry process involves no water. For Arabica in Northern Sumatra, coffee is wet processed at the mills or at the farm level. Most mills do not have a wastewater treatment center. But the wastewater is not directly released to the river either." (Expert survey, 2021). | |


| GHG EMISSIONS REDUCTION | | JDE Sourcing principle 3.1 |
|---------------------------|---|---|
| Score | 3.2 |  |
| Law | In 2016, Indonesia ratified the Paris Agreement (OECD, 2019). Indonesia's Nationally Determined Contributions (NDC) set an unconditional emission reduction target of 29% by 2030 (OECD, 2019; 2020). The 2014 National Energy Policy aims to expand the share of renewables; however, the policy also objectifies to double coal use (compared to 2015 levels) (OECD, 2019). Despite the government efforts for reducing GHG emissions, Indonesia's emissions remain on an upwards trajectory. The Climate Action Tracker (CAT) continues to rate Indonesia "highly insufficient". | |
| Evidence | Deforestation and forest degradation, combined with a strong reliance on fossil fuels for energy generation, make Indonesia one of the world's largest greenhouse gas emitters (OECD, 2019). Nevertheless, the agricultural sector's share of total energy use is 1.4% and the share of total GHG emissions is 13% (OECD, 2020). When considering CO2 emissions caused by coffee induced deforestation in 2017, Indonesia was ranked the second largest emitter following Honduras, i.e. 7 MT CO2 (Treanor & Saunders, 2021). However, coffee processing exhibits little emissions due to the strong reliance on traditional drying methods. A field survey conducted by Siagian et al. (2017) in Sumatera Utara province highlights that Robusta coffee is dried directly under the sun without any treatment. With 80% of the country's coffee being Robusta, emissions from processing are considered low. Evidence also highlights that more innovative, raised bed solar driers are utilized, constructed from timber and nets (HRNS, 2020). No non-conformities regarding GHG emission reduction 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 use energy efficiently and it is very unlikely that farmers use renewable energy sources. "The use of renewable energy sources is generally scarce in Indonesia, let alone in rural areas where most coffee farms are located." "For farm activities, most energy comes from fossil fuel" (Expert survey, 2021). | |

| CLIMATE SMART AGRICULTURE | | JDE Sourcing principle 3.2 |
|---------------------------|---|---|
| Score | 3.5 |  |
| Law | The law on sustainable agricultural systems (2019) aims to improve sustainable production and mandates that the achievement of food sovereignty should take into account the carrying capacity of ecosystems, mitigation of GHG emissions and adaptation to climate change (OECD, 2020). The Indonesian government has engaged with organizations such as the FAO and UN Development Program in strengthening climate smart agricultural practices (Rep. of Indonesia, 2017; UNDP, 2018). The 2014 National Action Plan for Climate Change Adaptation is the country's guiding policy for strengthening climate resilience; however, uptake of the plan in the provinces has been slow (OCED, 2019). | |
| Evidence | The ND-GAIN Country Index ranks Indonesia 100th out of 182 countries in terms of the country's vulnerability to climate change and its readiness to improve resilience (NDGAI, 2021). Climate change affects the welfare of coffee farmers in Indonesia (Sujatmiko & Ihsaniyati, 2018). High rainfall and longer drought cause flowers failing to bloom which leads to a decline in farmer's production and income. Studies predict that many of the currently suitable coffee-growing areas will lose their suitability (Conservation International, 2016). Despite constraints in production input, labor, knowledge, and capital (Djufry & Wulandari, 2021), coffee farmers in Sumatra are finding ways to cope with the increasingly unpredictable weather caused by climate change (Media, 2017). Planting more resilient varieties of coffee helps farmers absorb the severity of the shocks. Moreover, international coffee companies and organizations provide equipment and training to coffee farmers for implementing climate smart agriculture practices (ICP, 2019). | |
| Prevailing expert opinion | High risk: Climate change seems to have a negative impact on coffee production and farmers are not able to adapt. "We observe an increase in pests and diseases, and farmers were not able to respond to this change quickly enough due to limited access to information, technical support and agricultural input (that can help them adapt better)." "Coffee crops without tree cover or shade are burnt or ripe too fast resulting in red but not fully matured beans" (Expert survey, 2021). | |


| FOREST AND HIGH CONSERVATION VALUE AREAS (HCVS)* | | JDE Sourcing principle 3.3 |
|--|---|---|
| Score | 3.6 |  |
| Law | Indonesia has committed to REDD+ (reducing emissions from deforestation and forest degradation) and has several programs in place regarding forest conservation (Solymosi & Techel, 2019). The government issued a temporary moratorium on new oil palm plantation licenses and a permanent moratorium on primary forest and peatlands conversion (WRI, 2021; Media, 2018). These laws have resulted in a drop in annual deforestation rates (Media, 2021). Despite these efforts, Indonesia suffers from illegal logging and clearing (Taccani et al., 2019). Forest law enforcement is weak as substantial amounts of forests are being cleared for agriculture (Media, 2021). A lack of transparency within the Indonesian government to fight corruption in the process of approving land permits is highlighted (Media, 2019). | |
| Evidence | Indonesia ranks 142/168 on the Yale environmental performance index on tree cover loss. The country faces serious pressure on its natural forests due to logging and land clearing for agriculture, timber plantation, and mining (OECD, 2019). Between 2005 and 2015, total forest area declined by 7%, which represents the second-highest absolute forest loss worldwide, after Brazil. However, media reports (2020, 2021) indicate that in the past four years forest loss has been declining due to government policies. Concerning the coffee sector, there is a risk of deforestation caused by the shift of coffee production to more climate suitable areas (World Bank, 2021). However, this risk is difficult to quantify due to a lack of official data on the Indonesian coffee sector (CIAT, 2019). Treanor & Saunders (2021) note that as a proportion of total agricultural linked deforestation 0.9% can be attributed to coffee production. International organizations and coffee companies are investing in various programs helping coffee farmers to implement good agricultural practices that minimize deforestation (Media, 2018). This includes initiatives such as providing training and monetary rewards to protect ecosystem services (Conservation International, 2016; Rikolto, 2020). | |
| Prevailing expert opinion | Medium-high risk: When looking at the country's coffee-producing regions, it is likely that farmers have converted High Conservation Value areas to agricultural production or other land uses since January 1st, 2014. "In the region where we work (Lampung Province), there has been low awareness of HCV areas and the HCV identification has also been lacking (almost non-existent)." Generally, there is a "high tendency towards farm expansion" (Expert survey, 2021). | |
| | *Deforestation was listed as a top priority issue in the previous OIA Indonesia (2017). | |


| NATIVE VEGETATION AND ON-FARM BIODIVERSITY | | JDE Sourcing principle 3.4 |
|--|--|---|
| Score | 3.0 |  |
| Law | <p>In addition to the ratification of the Convention on Biological Diversity in 1994, Indonesia put in place a Biodiversity Strategy and Action Plan (IBSAP) for protecting the country's biodiversity (UNDP, 2016., Campera et al., 2021). Indonesia has declared a third of the nation's forests as conservation forests, around 27 million hectares (Faida, 2020). However, generally, there is a low political priority on biodiversity conservation (OECD, 2019). Insufficient human resources, the absence of local monitoring and evaluation institutions, and a lack of stakeholder awareness are hindering successful policy implementation (OECD, 2019; Ministry of Environment, 2009).</p> | |
| Evidence | <p>Indonesia is a highly biodiverse country that has some of the most threatened forests due to the conversion of land use for agricultural purposes (CBD; World Bank, 2021). Whereas the expansion of palm oil is cited as a serious threat to Indonesian biodiversity conservation, coffee production is reported to contribute to native vegetation and on-farm biodiversity. The forest-friendly crop does not rely on clearing land for cultivation which avoids biodiversity loss (Lisnawati et al., 2017). Studies that examine biodiversity in coffee agroforestry landscapes in Indonesia found high levels of bird diversity (Withaningsih et al., 2020) and shade tree species (Evizal et al., 2016). However, it is also noted that coffee production has shown to pose a direct threat to habitat loss in biodiverse areas such as Sumatra where it has been reported that coffee farmers cultivate on protected land, in violation of national law (GMAP). Programs to improve sustainable land use and conserve biodiversity on coffee farms have been implemented (USAID, 2018). No non-conformities regarding native vegetation and on-farm biodiversity were found in UTZ audits between 2016-2020 (RA, 2020).</p> | |
| Prevailing expert opinion | <p>Medium-low risk: When looking at the country's coffee-producing regions, it is unlikely that farmers contribute to the preservation of native vegetation and on-farm biodiversity. "To some limited extent farmers in the region maintain native vegetation and agroforestry; however, this practice is becoming less common due to several factors: limited knowledge on the benefit of maintaining native vegetation and on-farm biodiversity and lack of incentives to apply such practice" (Expert survey, 2021).</p> | |



| PROTECTED AREAS* | | JDE Sourcing principle 3.5 |
|---------------------------|--|---|
| Score | 3.1 |  |
| Law | <p>Indonesia has 733 total protected areas which exhibit a coverage of 12,17% (Protected Planet index). Of the protected areas, 7.11% have management effectiveness evaluations. The government set zones within conservation forests where human activity is prohibited. But this zone-based management has not been effective in keeping people from building settlements or plantations in the protected areas (Faida, 2020). Limited monitoring capacity is a hindering factor to safeguarding protected areas (OECD, 2019). In 2015, there were changes in the management of Indonesia's protected areas which reduced the number of forest guards in each park by 32% between 2012 and 2017 (Dwiyahreni et al., 2021). Despite the lacking efforts to enforce protected areas, Indonesia has already exceeded the Aichi Biodiversity Targets that aim to protect 13 - 17% of the land surface by 2020.</p> | |
| Evidence | <p>Indonesia's share of terrestrial protected areas is low by international comparison (OECD, 2019). Protected areas have not yet been proven to protect forests and biodiversity as the rate of deforestation in these areas is no different than in other forests (Dwiyahreni et al., 2021, World Bank, 2021). In Indonesia, coffee production areas likely overlap with several national parks and protected areas (GMAP). A WWF investigation uncovered illegal coffee production in Bukit Barisan Selatan National Park, a designated World Heritage site that is situated along the southern coast of Sumatra (GMAP). An estimated 26,000 tons of Robusta coffee come from within the park each year (WCS, 2018). In response to the illegal activities, a group of the world's leading coffee companies committed to addressing deforestation from illegal coffee production inside Indonesia's Bukit Barisan Selatan National Park (WCS, 2018). Also, in Lampung province coffee farmers were rewarded with community forestry schemes to sustainably use the state-protected forest (WAC, 2015). No non-conformities regarding protected areas were found in UTZ audits between 2016-2020 (RA, 2020).</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. On the one hand, experts express that "under the current Community Forestry legislation, it is possible for citizens to cultivate cash crops under (protected) forest area in an effort to look after the remaining forests." On the other hand, "farmers tend to clear land inside protected areas for coffee farming" (Expert survey, 2021).</p> <p>*Misuse of protected areas was listed as a top priority issue in the previous OIA Indonesia (2017).</p> | |

| YOUTH INCLUSION | | JDE Sourcing principle 4.1 |
|---------------------------|---|---|
| Score | 2.8 |  |
| Law | Indonesia’s Law on Youth (2009) focuses on youth inclusion and participation (UNFPA, 2014). Moreover, the government passed a policy on the employment of agricultural youth embedded in the Ministry of Agriculture Decree (No. 07/2013) (Sumatri & Falatehan, 2016). The 2020–2024 National Medium-Term Development Plan (RPJMN) gives attention to the investment in youth (SMERU Research Institute, 2021). Government initiatives aim to provide youth with higher quality education in order to promote the agriculture sector (Qurani et al., 2020). Strong efforts are made to implement projects aiming to transfer agricultural knowledge and technological skills to Indonesian youth. | |
| Evidence | In Indonesia, fewer young people are pursuing farming as a profession compared with previous generations (Media, 2020). Young people seek alternative jobs to farming, some young people perceive agricultural work as low income and suitable for those who have limited education (Media, 2017; 2020). As a result, the average age for coffee workers in Indonesia is 43 years old (ILO, 2020). To involve youth in the coffee sector, organizations have implemented initiatives targeting youth inclusion and capacity-building (Kopernik, 2021; IDH, 2017). Furthermore, a study conducted by Junais et al. (2020) with 151 coffee-farming families with children in between 14–35 years old found that young farmers are more optimistic about the business opportunities in agriculture than their parents and are more aware of the potential of resources available to them. Yet, young farmers face challenges in access-land as inheritance is the dominant mechanism to attain land ownership, often at a later age. | |
| Prevailing expert opinion | Medium-low risk: When looking at the country’s coffee-producing regions, it is likely that the participation of young farmers is promoted. “Most company/government targeted programs for coffee farmers aim to involve people under 30 years of age. However, participation rates are generally low as youth do not see coffee farming as a promising way of life.” Furthermore, “initiatives do not guarantee that youth in Indonesia have access to employment and a voice in decision making” (Expert survey, 2021). | |

| GENDER EQUALITY | | JDE Sourcing principle 4.2 |
|---------------------------|---|---|
| Score | 3.6 |  |
| Law | In 1984, Indonesia ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (UNDP, 2017). The government has made efforts to address violence against women by implementing a zero-tolerance policy for gender-based violence. The Indonesian National Medium-Term Development Plan 2015–2019 integrated principles of gender equality; however, inadequacies were found in main ministerial strategic planning documents that considered little gender analysis (FAO, 2019). Multiple government ministries work in partnership to reduce gender equality, nevertheless, women still exhibit lower wages than men (USDS, 2020). International organizations have put increasing pressure on the Indonesian state to reform gender-discriminative policies (UNRISD, 2016). | |
| Evidence | Although gender equality is addressed by the Indonesian government, indicators reveal gaps between policy and implementation (UNDP, 2017). Indonesia has a Gender Inequality Index value of 0.480, ranking it 121st out of 162 countries in 2019 (UNDP, 2020). Indonesian women are involved in almost all agricultural processes and vital functions, yet they still often lack recognition (Media, 2020). Women in agriculture are marginalized and often have little access to financial resources, knowledge, and technology to improve their crop yields and livelihoods (FAO, 2019). Women coffee farmers have difficulty gaining access to land as land titles only hold one name commonly associated to the husband (USAID, 2019; Prihandono & Relig, 2019). Sumatri & Falatehan (2016) observe that several young female coffee farmers as well as the females’ mothers, do not have control or benefits over the resources. Gender pay gaps for coffee workers can be as high as 25% (ILO, 2020). To address the gender inequalities women-led cooperatives have been established to aid female farmers (Media, 2019; USAID, 2019). | |
| Prevailing expert opinion | Medium-high risk: Women partially have equal rights, responsibilities, and opportunities. “Our patriarchy system still allows the discrimination of women in getting training access, subsidies or even opportunities in enrolling as a member of a cooperative. Women are burdened with the stereotype of having to look after children and are viewed as the husband’s ‘helper’. In meetings, women do not get an equal share of ‘talk’ and when they’re encouraged to talk, they are already left behind due to the historical discrimination of not being championed as leaders or public speakers. Knowledge hubs are also unfriendly towards women, hard to access and some women with children also discouraged to take important positions as they are expected to pay more attention to child care” (Expert survey, 2021). | |

| CHILD LABOR | | JDE Sourcing principle 5.1 |
|---------------------------|---|---|
| Score | 2.6 |  |
| Law | Indonesia has ratified both the Minimum Age Convention (1973) and the Worst Forms of Child Labor Convention (1999) (ILO). Indonesia’s child labor law specifies that children under 15 are restricted to work and children under 18 years are not allowed to work in hazardous work as defined by the law (ILO, 2017). However, this excludes children who do not have “clear wage relationships with an employer,” which leaves many children working in agriculture unprotected under the law (GMAP). The government made moderate advancements in addressing child labor by substantially increasing its labor inspectorate funding (USDOL, 2019). In 2019, through its Family Hope Program, the government removed 18,000 children from child labor (USDS, 2020). Despite this progress, the enforcement of the law prohibiting the worst forms of child labor remains slow and ineffective. A lack of financial resources and personnel are highlighted (USDOL, 2019). | |
| Evidence | Indonesia’s National Commission on Child Protection reported that approximately 8.5 million children under the age of 18 are working in the country due to poverty (GMAP). In the rural areas, child labor takes place primarily in agriculture most frequently within poor families that rely on their children’s labor for household income (UNICEF, 2020). UNICEF (2020) highlights that boys are more likely to be involved in child labor than girls. The Social Hotspot Database attaches a very high risk score to child labor occurring in the Indonesian crop sector. Amnesty International (2016) documented evidence on the involvement of children in hazardous work on palm oil plantations. Whereas rubber, tobacco, fish, oil (palm) are on the USDOL (2020) list of goods produced with child labor, coffee is not included. Nevertheless, coffee farming is considered labor-intensive and sometimes relies on the labor of children (Prihandono & Relig, 2019). Children working on agricultural plantations, including coffee, are sometimes involved in spraying toxic herbicides (USDOL, 2019). The Rainforest Alliance attaches a medium risk score to child labor in the Indonesian coffee sector. | |
| Prevailing expert opinion | Low risk: Child labor does not happen in the country’s coffee-producing regions. “Child labor within the coffee sector in Indonesia is seldom heard of.” However, one expert indicates that “most likely some form of child labor takes place in peak seasons” (Expert survey, 2021). | |

| FORCED LABOR | | JDE Sourcing principle 6.1 |
|---------------------------|--|---|
| Score | 2.6 |  |
| Law | Indonesia has ratified both the Forced Labor Convention and the Abolition of Forced Labor Convention (ILO). The law prohibits all forms of forced or compulsory labor; however, the government did not effectively enforce the law (USDS, 2020). The government decreased funding for victim protection, and its budget for the national task force’s coordination for the fourth consecutive year (USDA, 2020). Forced labor continues to occur also in the plantation agriculture sectors (USDS, 2020). | |
| Evidence | The Global Slavery Index (2018) ranks Indonesia 74th out of 167 countries with an estimated 1,220,000 people living in modern slavery. The Social Hotspot Database also attaches a medium risk to overall forced labor in the crop sector. The International Labor Organization (ILO) and the US Department of State cite agriculture as a sector in which forced labor occurs; however, primarily in the palm oil and tobacco sectors (GMAP; USDA, 2020). Coffee is not included on the list of goods produced with forced labor in Indonesia (USDOL, 2020). The Rainforest Alliance gives forced labor in coffee in Indonesia a medium risk score. No non-conformities regarding forced labor were found in UTZ audits between 2016-2020 (RA, 2020). | |
| Prevailing expert opinion | Low risk: It is very unlikely that forced labor happens in the country’s coffee-producing regions. “I don’t think there are stories about forced labor but if there were it would be very hard to discover, and it would also be bad to assume there are. However, there is news in which families are poor and they do not have another choice to survive than to work despite payment being barely enough” (Expert survey, 2021). | |

| WORKERS' RIGHTS AND DUTIES | | JDE Sourcing principle 6.2 |
|------------------------------|--|---|
| Highest score | 3.5 | |
| ACCOMMODATION | | |
| Score | N/A | |
| | At the moment, information collected on accommodation does not allow us to draw specific conclusions. Pre-valuing expert opinion: Medium-low risk; workers and their families are responsible for their own accommodation. "Farmworkers often work on their own/family land, not far from their own homes" (Expert survey, 2021). | |
| COLLECTIVE BARGAINING | | |
| Score | 3.0 |  |
| Law | Indonesia has ratified the Freedom of Association and Protection of the Right to Organize Convention, and the Right to Organize and Collective Bargaining Convention (ILO). Freedom of assembly is usually upheld, and peaceful protests are common (Freedom House, 2020). Indonesian law, with restrictions, provides the rights for workers to join independent unions, conduct legal strikes, and bargain collectively (USDS, 2020). However, the government did not always effectively enforce provisions of the law protecting freedom of association. Farmers supporting agencies functioned poorly across the country which negatively influences the collective bargaining capacity (Hartatri et al., 2019). | |
| Evidence | The 2020 ITUC Global Rights Index classifies Indonesia under rating 5 indicating that there is no guarantee of rights for workers. Nevertheless, workers' bargaining position grew stronger within the process of minimum wage setting, as trade unions were afforded greater representation on wage councils (AKATIGA, 2015). Difficulties for unions to recruit and keep workers in the union are highlighted due to the high number of informal economy workers particularly in the agricultural sector (Labour Institute Indonesia, 2016). In the coffee sector, coffee farmers are generally not organized (Solymosi & Techel, 2019). A project by the Cooperatives and Small and Medium Enterprises Ministry and the Sustainable Coffee Platform of Indonesia aims to further develop cooperatives for small-scale coffee farmers in Indonesia (Media, 2020). | |
| Prevailing expert opinion | Medium-high 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. "I think the coffee sector is much better compared with other sectors." "Plantation workers/ temporary workers usually know the process of collective bargaining but do not much want to be involved in it. They consider participation in this process boring and confusing" (Expert survey, 2021). | |
| MINIMUM WAGE | | |
| Score | 3.2 |  |
| Law | Indonesia has neither ratified the Protection of Wages Convention nor the Minimum Wage Fixing Convention (ILO). The minimum wage setting is decentralized (ILO, 2020), and as a result rates vary throughout the country as provincial governors have the authority to regulate wages (USDS, 2020). Penalties for violations include fines and imprisonment. However, enforcement of minimum wage laws is weak. Workers in the informal sector often do not receive the same protections or benefits as workers in the formal sector (USDS, 2020). | |
| Evidence | The Social Hotspot Database attaches a low score to the risk that average wages in the agricultural sector are below the country's minimum wage. Nevertheless, Amnesty International (2016) observes low wages on Indonesian plantations and finds that workers are paid below the daily or monthly minimum wage when they do not meet their targets. Concerning the coffee sector, evidence highlights that farmers are able to pay their hired workers a living wage using their coffee income (Media, 2017; Fairtrade, 2017). Evidence from the Banaran coffee plantation exhibits decent wages to their workers (Media, 2018). However, due to the large share of smallholder farmers employees are seldom hired. As a result, the ILO (2020) estimates that only 9% of coffee workers earn the minimum wage or more as unpaid labor is commonplace. No non-conformities regarding minimum wage were found in UTZ audits between 2016-2020 (RA, 2020). | |
| Prevailing expert opinion | Medium-high risk: Part of the workers are paid less than minimum wage. "We do not have an exact 'minimum wage' at the national level, the minimum is different in every province, and depends on the local government's decision." "Many farmworkers are part of a family business, and often unpaid/ underpaid. Farm laborers are also paid using daily rates, not related to the regional minimum wage benchmark" (Expert survey, 2021). | |

SAFE WORKING ENVIRONMENT JDE Sourcing principle 6.3

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|---------------|------------|
| Highest score | 2.8 |
|---------------|------------|

OCCUPATIONAL HEALTH SAFETY*

| | | |
|-------|------------|---|
| Score | 2.8 |  |
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| Law | Indonesia has not ratified the Occupational Safety and Health Convention (ILO). However, Indonesian law requires employers to provide a safe and healthy workplace (USDS, 2020). The Work Safety Act (1970) is the main OHS law (Buranatrevedh, 2015). Weaknesses in the OHS regime of the country are primarily attributed to the enforcement of laws (GMAP). The low number of labor inspectors and inaccurate data are challenges for implementing OHS (ILO, 2018). Unions continue to urge the government, especially the Ministry of Manpower, to do more to address the country’s poor worker safety record and lax enforcement of health and safety regulations (USDS, 2020). |
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| Evidence | In Indonesia, plantation workers often lack proper safety gear and training in pesticide safety (USDS, 2020). This also includes the coffee sector in which the necessary measures to protect health and safety are routinely ignored (GMAP). The application of pesticides such as Endosulfan creates a risk of pesticide poisoning for the exposed workers. However, evidence highlights that coffee companies and international organizations provide personal protective equipment, such as gloves, to coffee workers (Olam, 2020; Media, 2018). No non-conformities on OHS were found in UTZ audits between 2016-2020 (RA, 2020). |
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| Prevailing expert opinion | Medium-high 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. “Overall, coffee farms and plantations are safe (for men), compared with other sectors.” Nevertheless, “protective equipment is seldom used during fertilizer/ pesticide application” (Expert survey, 2021). *Unsafe Working Conditions was listed as a top priority issue in the previous OIA Indonesia (2017). |
|---------------------------|--|

FIRST AID AND EMERGENCY HEALTHCARE

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|-------|------------|
| Score | N/A |
|-------|------------|

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| | At the moment, information collected on first aid and emergency healthcare does not allow us to draw specific conclusions. Prevailing expert opinion: Medium-low risk; it is likely that workers receive first aid and emergency health care for treatment of work-related injuries. “Some areas have really good access to medical centers or satellite posts, some need better access (due to roads and difficult landscapes).” “It is generally the responsibility of the worker to take care of themselves at work” (Expert survey, 2021). |
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DRINKING WATER


| | | |
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| Score | 2.5 |  |
|-------|------------|---|


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| Law | Local governments have made good progress in building capacity to provide water supply and sanitation services in their districts and cities (World Bank, 2015). The government of Indonesia has set ambitious targets to reach sustainable access to drinking water, and therefore continues to heavily invest in the water supply and sanitation sector (USAID, 2017). The emergency state of the COVID-19 pandemic, however, has led to a reduction in government funds for programs providing safe drinking water (Permana, 2020). |
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| Evidence | In Indonesia, 87.4% of the total population has access to safe drinking water, whereas the percentage for the rural population lies at 79.5% (FAO AQUASTAT). Although these numbers indicate overall sufficient access to safe drinking water, for many low-income households the water sources remain distant, contaminated, or expensive (Water.org, 2021). Evidence on the coffee sector highlights the far distances to safe drinking water sources and how it often is collected by women who take the long trip (Water Mission, 2019). Projects implemented by private sector companies and non-profit organizations have addressed issues regarding drinking water for coffee-growing households (NCBA CLUSA, 2018; Water Mission, 2019). No non-conformities on drinking water were found in UTZ audits between 2016-2020 (RA, 2020). |
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|---------------------------|---|
| Prevailing expert opinion | Low risk: When looking at the country’s coffee-producing regions, it is very likely that workers have convenient access to safe drinking water. “Groundwater or bottled mineral water is generally available and accessible for farming communities.” “Safe drinking water is currently being provided to village level by the government” (Expert survey, 2021). |
|---------------------------|---|

| AGROCHEMICAL HANDLING | | JDE Sourcing principle 6.4 |
|---------------------------|--|---|
| Score | 3.2 |  |
| Law | <p>Indonesian law gives authority to the Ministry of Environment to manage and control hazardous and toxic materials (Rep. of Indonesia, 2008). The government has restricted the use of hazardous agrochemical products to large plantations, requiring the products to be applied by licensed sprayers only (Lebe, 2018). Also, the Ministry of Manpower regulation specifies that workers must wear personal protective equipment and that the hours exposed to pesticides must be restricted (ILO, 2017). The labor inspection is enforcing the implementation of the regulations. Despite the efforts, the government has been criticized for lacking attention on the protection of workers (Mohammad et al., 2018; Coppens, 2016).</p> | |
| Evidence | <p>Chemical pesticides are widely applied and misused in Indonesian agriculture (Coppens, 2016). Farmers are generally not aware of the active ingredients and safety level of the products they use (Lebe, 2018). Moreover, awareness among farmers of the importance of protecting themselves from hazards associated with pesticide application is still lacking (Yuantari et al., 2015; Mahyuni et al., 2020). A study focusing on the current situation of pesticide use among Indonesian cocoa farmers finds that only 10% of the farmers use protection while spraying and they do not handle (90.6%) and store (81.2%) pesticides safely (Lebe, 2018). Evidence on agrochemicals used in the coffee sector remains limited. Most smallholder coffee farmers utilize few inputs on their farms which minimizes the risk of pesticide poisoning and other health hazards (USDA, 2019). Compared to other major coffee producing countries (Vietnam, Colombia, Brazil) Indonesian plantations tend to apply fewer agri-chemical inputs (TPSA Project, 2018; Johnson et al., 2020). Non-conformities on agrochemical handling were found in UTZ audits between 2016-2020 (RA, 2020).</p> | |
| Prevailing expert opinion | <p>Medium-high risk: When looking at the country's coffee-producing regions, it is unlikely that agrochemicals are handled in the right way. "Knowledge on agrochemical management is limited and protective equipment is seldom used on-farm." "Improper agrochemical handling is very likely due to a lack of awareness on the danger/impacts" (Expert survey, 2021).</p> | |

| FARM & HOUSEHOLD ECONOMICS | | JDE Sourcing principle 7.1 |
|----------------------------|---|---|
| Score | 3.3 |  |
| Law | <p>The Ministry of Industry has prioritized coffee to support the development of the sector through several policies (Furqon et al., 2019). The Indonesian specialty coffee farmer organization was established by the government to manage coffee production, processing, and marketing at the farmer group level (Hartatri et al., 2019). Furthermore, the co-operative for the Indonesian Coffee is a business program established by the Ministry of Co-operative & Small Medium Enterprises that aims to improve coffee farmers' incomes and yields (Nugroho et al., 2019). However, overall government support mostly targets commodities with larger proportions of exports such as palm oil and cocoa; therefore, little attention is given to the national coffee industry (Sarirahayu & Aprianingsih, 2018).</p> | |
| Evidence | <p>Studies on farmer household income show that coffee farmers in Indonesia and Vietnam have the highest average household income (Sembiring et al., 2018). A study on coffee farmers in East Java province indicates that the level of farmer motivation in business development was high, however, the entrepreneurial capacity was in the moderate category (Sudarko, 2020). Moreover, evidence on coffee farming in Lampung province highlights that coffee farming is profitable and contributes not only to the household economy but also to the regional economy of the province (Arifin, 2019). Despite the support being offered, coffee farmers in Indonesia have very limited capacity to invest in their plantations due to low productivity, aging orchards, and limited access to finance (World Bank, 2015). Incomes are found to be relatively unstable (Faradillah et al., 2019; Furqon et al., 2019). A study carried out in Southern Sumatra shows that farmers are confronted with decreasing incomes and increasing expenditures due to COVID-19 (Bidarti, 2021).</p> | |
| Prevailing expert opinion | <p>Medium-high risk: Most coffee farmers are not sufficiently aware of the farm and household economics. "Farmers seldom keep track of their income and expenses, nor record/document them sufficiently." "They farm based on gut and experience." Moreover, "very little training is received in regard to the calculation of all in- and outputs" (Expert survey, 2021).</p> | |


| TRADING RELATIONSHIP | | JDE Sourcing principle 7.2 |
|---------------------------|--|---|
| Score | 3.0 |  |
| Law | <p>In an attempt to innovate and diversify the Indonesian coffee sector, the Indonesian government initiated a public standard and certification scheme (National Standard of Indonesia) to make the coffee sector more competitive in international markets (Glorya & Nugraha, 2019). Despite this effort, experts see gaps in the policies as support for implementation is limited. Moreover, seedlings are provided by the government to support Indonesian coffee farmers; however, this aid only reaches few farmers and the seed quality is inconsistent (Harahap, & Humaizi, 2018). In 2020, the Trade Ministry launched an “Indonesia Coffee Week” to promote the nation’s beans and boost exports, especially to the European Union (EU), as trade decreased during COVID-19 (Media, 2020). A national body specific to the coffee sector does not exist, making coordination of sector stakeholders inefficient (Solymosi & Techel, 2019).</p> | |
| Evidence | <p>Planting materials, e.g., seedling, are locally available in small quantities (USDA, 2019). Evidence highlights that poor accessibility to supporting facilities and limited financial aid remain common issues across the Indonesian coffee sector (Byrareddy et al., 2019; Furqon et al., 2019). In some areas, agriculture extension services offering financial and educational support are absent (USDA, 2019). “Farmer business credits” catering specifically to coffee farmers are available in Southern Sumatra and East Java only (Solymosi & Techel, 2019). The credit scheme is poorly communicated, seeing little uptake by farmers. Moreover, a general distrust of financial institutions is observed among coffee farmers (TPSA Project, 2018). Members of coffee cooperatives often have access to production facilities and are provided mentoring (Karyani et al., 2019). However, for the unassociated farmers, the issue of not having access to buyers remains (Media, 2018). During the pandemic, international coffee companies have supported Indonesian coffee farmers by delivering donation packages including face masks, hand sanitizers, and food staples to prevent further spread of the Coronavirus and assist coffee farming communities (Media, 2020). Private sector companies have provided financial and banking literacy training to coffee farmers (Glorya & Nugraha, 2019).</p> | |
| Prevailing expert opinion | <p>Medium-high risk: When looking at the country’s coffee-producing regions, it is unlikely 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. “Access to loans is often considered the responsibility of farmers, not companies. Farm inputs may be available for farmers under company targeted programs.” “Larger green bean buyers have CSR projects that link farmers to their centers. Very few buyers work solely to capacitate farmers and help them to look for their own market via cooperative structures” (Expert survey, 2021).</p> | |

| GOOD AGRICULTURAL PRACTICES | | JDE Sourcing principle 8.1 |
|-----------------------------|--|---|
| Score | 3.3 |  |
| Law | <p>A regulation of the Ministry of Agriculture aims to implement Good Agriculture Practices and specifies technical guidelines for good coffee practices (Andoko et al., 2020). Also, the establishment of the National Standard of Indonesia (SNI) is considered the first attempt of the government to more comprehensively pay attention to sustainable coffee production (Ibnu et al., 2019). However, the implementation capacity of the SNI is low, because of weak administrative structures, and communication and coordination deficiencies.</p> | |
| Evidence | <p>With only 7% of exported coffee being certified with sustainability standards, adoption of good agriculture practices such as pruning and integrated pest management is low (Solymosi & Techel, 2019). Multiple sources find that in the Indonesian coffee sector, overall fertilizer application is low, and pesticides are very rarely used (Johnson et al., 2020, TPSA Project, 2018, USDA, 2019). A case study on Karo Regency in North Sumatera finds that coffee farmers did not grow shade trees (Harahap, & Humaizi, 2018). To increase the adoption of Good Agricultural Practices, coffee farmers have received training by organizations such as Indonesia’s Sustainable Coffee Platform (SCOPI) and Conservation International that develop the skills and knowledge to sustainably increase coffee productivity (GCP, 2019; CI, 2016). An estimated 84.500 farmers have benefitted from the Master Trainers program offered by SCOPI (GCP, 2018). Non-conformities regarding GAPs were found in UTZ audits between 2016-2020 (RA, 2020).</p> | |
| Prevailing expert opinion | <p>Medium-high risk: Expert estimates on the percentage of farmers in the coffee-producing regions using Good Agricultural Practices vary between <25 and >75%. “Some farmers implement GAP, some are not encouraged/ do not have access to knowledge and skills to do so.” “Government/company programs that specifically target coffee farmers have limited outreach” (Expert survey, 2021).</p> | |

| HARVEST AND POST-HARVEST PRACTICES | | JDE Sourcing principle 8.2 |
|------------------------------------|---|----------------------------|
| Score | 3.7 | |
| Law | Regulations by the Ministry of Agriculture deliver guidelines for handling post-harvest coffee (Andoko et al., 2020). To intensify coffee production the Agricultural Ministry has made provisions for post-harvest processing tools and quality seeds to improve national coffee production (Media, 2017). The Ministry of Industry has made attempts to train coffee farmers on planting and post-planting techniques; however, the number of on-field supervisors able to directly train farmers is insufficient, and not all coffee farmers can benefit from government support (Glorya & Nugraha, 2019). | |
| Evidence | Research on coffee farmers in Ngrambe Subdistrict finds that only 22% of farmers consulted exhibit appropriate harvest practices and that, generally, coffee farmers (> 70%) do not sort the coffee beans (Prajogo et al., 2020). Evidence on Robusta coffee farmers in Bengkulu province and in West Sumatra shows that farmers harvest without differentiating the level of fruit maturity resulting in a low quality of coffee beans (Dewi et al., 2021; Taib & Hari, 2019). The sun-drying process is the most common post-harvest technique on Indonesian coffee farms (Siagian et al., 2017). However, Indonesia’s extreme humidity and inconsistent rainfall can cause defects to the coffee during the drying process due to the high moisture levels (Media, 2016). As a result, farmers prefer wet processing as it provides more consistent bean quality. Unique to Indonesia is the wet hulling process (giling basah) which includes pulping the cherry on the farm and then fermenting and washing the coffee before it is sun-dried (Sucfina, 2020). This technique is faster compared to the dry processing method and preferred among producers in need for prompt payments. Little knowledge and capacity for implementing harvesting and processing management are barriers to improving the coffee quality in Indonesia (Dewi et al., 2021). Non-conformities regarding harvest and post-harvest practices were found in UTZ audits between 2016-2020 (RA, 2020). | |
| Prevailing expert opinion | Medium-high 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 less than 25%. “Plucking of green beans is the most prevalent issue. The cause for this is the immediate need for money. The month before the harvest is the poorest month for farmers.” “There is a lack of incentives from pricing to encourage farmers to invest more time on meeting quality coffee.” “Pulping and further processing is not performed by all farmers” (Expert survey, 2021). | |

| INTEGRATED PEST MANAGEMENT | | JDE Sourcing principle 8.3 |
|----------------------------|--|----------------------------|
| Score | 3.4 | |
| Law | In the 1990s, the Indonesian government adopted a strategy of Integrated Pest Management (IPM) which is considered as one of the most successful examples of wide-scale adoption of IPM principles and practices in a developing country (Thorburn, 2014). Generally, organic farming is promoted as high prices for fertilizer import discourage the use of agrichemical inputs (Johnson et al., 2020; FFTC Agricultural Policy Platform, 2019). However, the pest management system is considered weak in the coffee sector (Andoko et al., 2020). The capacity to successfully undertake an awareness and training campaign on IPM in the coffee sector does not exist within the current government extension network (World Bank, 2015). | |
| Evidence | The development and implementation of an effective IPM strategy for the Coffee Berry Borer (CBB) in Indonesia is ongoing (Johnson et al., 2020). Smallholder farms are often unable to implement IPM methods due to economic constraints and insufficient training. Pest infestations together with a decreasing coffee price have reduced coffee yields, leading some farmers to convert their coffee lands to citrus or vegetable production (Media, 2016; JDE regional insights, 2021). Nevertheless, evidence also highlights that Indonesian farmers’ practical knowledge on the CBB and its management has significantly improved (ICCRI, 2013). Locally based master facilitators and farmers have been trained in IPM. Research by Rostaman (2019) finds that coffee farmers control insect pests using various measures. The most popular measure is sanitation. Non-conformities regarding Integrated Pest Management were found in UTZ audits between 2016-2020 (RA, 2020). | |
| Prevailing expert opinion | 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 not commonly practiced.” “Only low-cost IPM is being made and as long as it is not complicated.” “Coffee farmers are still heavily reliant on pesticides or weed protection especially in areas closer to cities where they can get access to these materials. Some farmers do ignore pests and accept that they are unfortunate” (Expert survey, 2021). | |

| BANNED PESTICIDES | | JDE Sourcing principle 8.4 |
|---------------------------|--|---|
| Score | 3.1 |  |
| Law | Indonesia is a signatory to several international conventions and agreements related to responsible pesticides use, including the 2008 Rotterdam Convention and the Stockholm Convention on Persistent Organic Pollutants (Perdana, 2020; Rep. of Indonesia, 2014). The Ministry of Agriculture determines several banned active ingredients of pesticides that cannot be imported or produced in Indonesia (Maden et al., 2014). Concerning the coffee sector, the government banned certain Coffee Berry Borer pesticides (endosulfan, carbaryl, carbofuran) to prevent further environmental harm due to runoff (Mercanta, 2021). | |
| Evidence | Although persistent organic pollutants (POP) have been banned for decades, pesticide residues of DDT and other POPs remain to be found in Indonesia’s agricultural systems (Sanchez et al., 2019; Amqam et al., 2018; Ardiwinata et al., 2019). Glyphosate accounts for 73% of total herbicide active ingredients used particularly for crops such as oil palm, rice, and corn (Brookes, 2019). However, Indonesia’s coffee sector is not an important user of glyphosate. Generally, coffee farmers apply low levels of fertilizers and pesticides which minimizes the risk of banned pesticides occurring in the coffee sector (Johnson et al., 2020, USDA, 2019, TPSA Project, 2018). Non-conformities regarding banned pesticides 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 likely that banned pesticides are used. “Farmers unknowingly use brands that contain prohibited ingredients, some of these brands use newer names. We do not have strict policy and punishment on the circulation of banned items.” “Banned chemicals are sold at local stores.” “Few farmers still use agrochemicals containing fipronil and paraquat” (Expert survey, 2021). | |

| INCOME DIVERSIFICATION | | JDE Sourcing principle 9.1 |
|---------------------------|---|---|
| Score | 2.7 |  |
| Law | Indonesia has a liberal coffee sector. As a result, the Indonesian government does not prioritize coffee but mostly supports the sector as part of its commodity export strategy (SCS & USAID). However, since the impacts of the COVID-19 pandemic government officials have acknowledged the need to further support and finance the local coffee industry (Media, 2020). In its 20-year development plan (2005 - 2025) the government aims to develop higher-value cropping to improve rural livelihoods (FAO, 2017). | |
| Evidence | In Indonesia coffee contributes to livelihoods but is often not the main source of income (Solymosi & Techel, 2019). It is estimated that coffee farmers derive about 40% of their household income from coffee production (World Bank, 2015; Conservation International, 2016). Multiple points of evidence highlight that coffee farms are highly diversified (Dwiartama, 2020; World Bank, 2015). Intercropping coffee with other food crops including rice, corn, avocados, and other vegetables is common for an alternative additional income (Anhar et al., 2021; Johnson et al., 2020). However, recent price instability and climate change-related issues such as shifts in land suitability and an increase in pest infestations have reduced coffee yields (Conservation International, 2016). This has led to some farmers converting their coffee lands to citrus production with the hope to generate more income. | |
| Prevailing expert opinion | Medium-high risk: Expert estimates on the average percentage of farmer’s net income generated from coffee production vary between 40 - 80%. “Farmers are increasingly seeking other sources of income through informal work outside the farm (trading, motorcycle driving, seasonal work elsewhere), or planting additional crops on their farms that may generate additional income outside the coffee harvest seasons.” However, “most farmers count on coffee production for their income” (Expert survey, 2021). | |