

**The Coffee Bean: A Value Chain and Sustainability Initiatives Analysis**  
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**ABSTRACT**

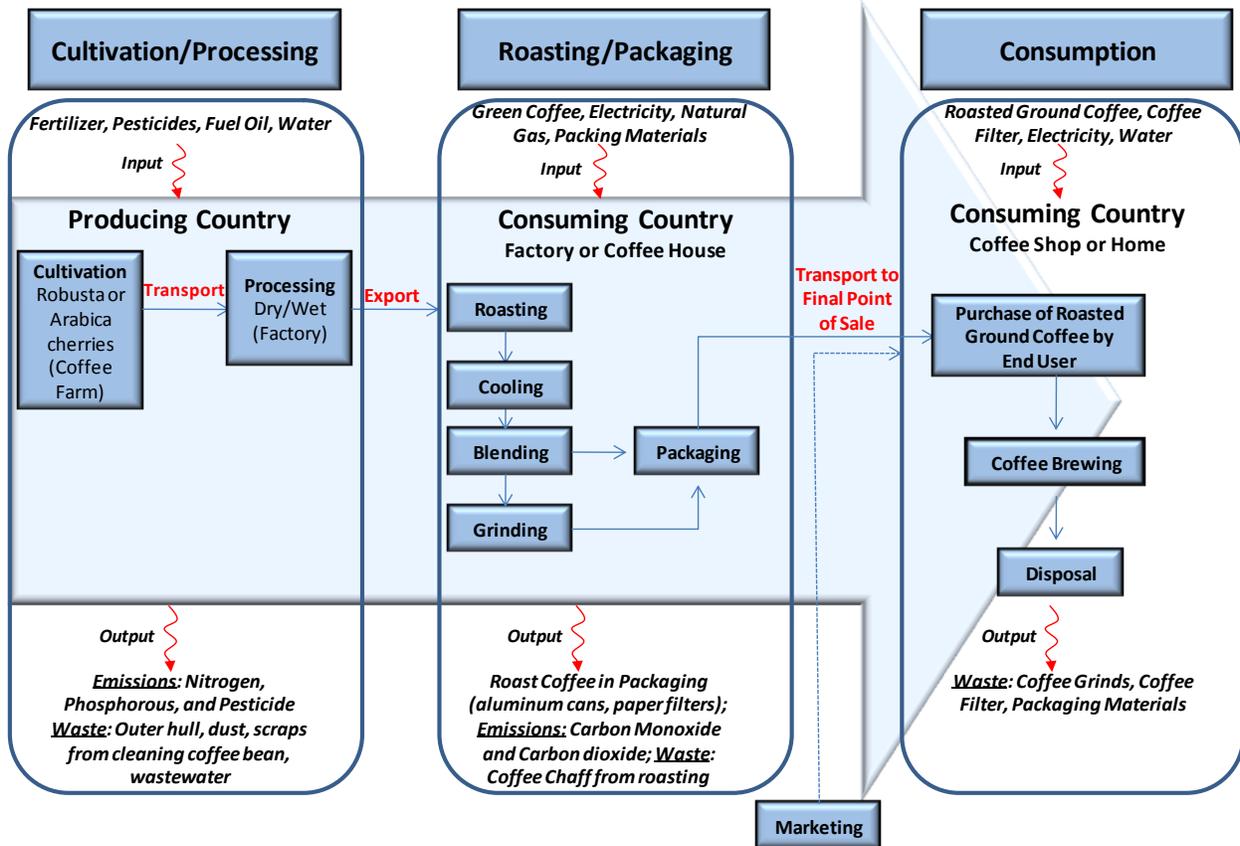
*This paper examines Starbucks' corporate strategy of sustainable efforts in Ethiopia, particularly in the sustainable sourcing Arabica coffee. The paper discusses the value chain of coffee, issues surrounding the coffee supply chain and the need for sustainable coffee production. In addition it also discusses Starbucks' position and influence on the coffee trade, and the measures that Starbucks is taking to ensure sustainability efforts throughout the coffee supply chain.*

**COFFEE VALUE CHAIN & P3G ANALYSIS**

Coffee is produced in more than fifty developing countries in Latin America, Africa, and Asia and it is an important source of income for 20-25 million families worldwide [1]. The initial production of coffee beans including farming, collecting, and processing is labor intensive and as a result is performed in more labor abundant developing countries. The roasting and branding of coffee is more capital intensive and therefore is situated in northern industrialized countries. The top five coffee consumers are United States of America, Brazil, Germany, Japan, and France [1].

The structure of the value chain is very similar regardless of producing or consuming country. The coffee value chain is made up of the four main phases: Cultivation, Processing, Roasting, and Consumption. Each phase in the process has environmental, social, economic and governance issues that affect the future sustainability of extracting the coffee bean.

**FIGURE 1: THE COFFEE VALUE CHAIN**



## Cultivation

The coffee cultivation process begins with a coffee cherry. Coffee cherries are differentiated by type and natural conditions such as altitude, latitude, and volcanic soil. A coffee plant usually starts to produce flowers 3–4 years after it is planted, and it is from these flowers that coffee cherries appear, with the first useful harvest possible around 5 years after planting. Cherries typically ripen and are harvested around eight months after the emergence of the flower. In most countries, coffee cherries are picked by hand which is a very labor intensive and difficult process. After about twenty years the coffee tree’s productivity diminishes, however with correct handling trees can bear cherries for more than fifty years. There are two types of coffee beans: Robusta and Arabica. Robusta coffee has a harsher taste, twice the caffeine content, can be grown at sea level, and is more resistant to pests and diseases than Arabica. Arabica coffee is known for its higher quality, but can only be produced in warmer temperate zones or in highlands of tropical zones and has a shorter ripening period of about six months [2]. The inputs needed to maximize the coffee cultivation process are fertilizer and pesticides. The outputs from coffee cultivation are emissions including nitrogen, phosphorous, and pesticide [3].

## Processing

Once coffee berries are collected they are then transported to processing mills. Cost for transportation from the field to the mill can be significant depending on the distance between the farm and the producing mill. Once the berries arrive at the mill they are processed, sorted, and graded by size, weight, and form. Processing of coffee is the method of converting the raw fruit of the coffee cherry into the green (dried) coffee beans. There are two processing methods: wet and dry process. The wet process requires a lot of effort, time, water, and therefore money. The coffee cherries are sorted by immersion in water; bad or unripe cherries float and the good ripe cherries sink. The ripe cherries are then machine cleaned by pressing the fruit in water through a screen. Lastly, the beans are

dried either by the sun or by machines. The dry process involves sorting and cleaning cherries by hand and then placing them in the sun to dry naturally or using a machine to speed up the drying process. This is very common on small or medium plantations and in regions where temperatures are warmer and supplies of clean, fresh, water are not plentiful [2]. Inputs needed for the processing phase are the coffee cherries, water (for the wet processing method), and fuel oil for machine drying. The output of the processing phase are green (dried) coffee beans and solid waste including the outer hull, dust, and scraps from cleaning the cherries which are typically disposed [3]. The green beans are then classified, graded, and exported to the consuming country for roasting and packaging.

## **CULTIVATION / PROCESSING IMPACTS ON P3G ELEMENTS**

Because both cultivation and processing take place in the producing country, the impacts these phases have on most of the P3G elements are similar. Issues relating to people, profit, and governance are the same for both cultivation and processing; however each phase has an independent impact on the planet.

### **People**

In most coffee producing countries harvesting and processing laborers work under extremely poor conditions. On the farms, coffee laborers are involved with every aspect of the growing/harvesting process. They are involved in weeding, spraying, picking and weighing the coffee berries. In so doing, they are at risk of being poisoned by pesticides, bitten by snakes or insects and injured by cutting tools and branches. In the factories, they are at risk of being injured from contact with machinery, contracting respiratory diseases due to exposure to coffee dust, and suffering impairment or loss of hearing due to noisy machinery. All of these issues can be avoided if the workers are given protective gears, such as plastic coats, boots, gloves, hats, and masks. Yet, they are seldom offered such protective gear. A coffee worker's wage is extremely low and as a result they live below the poverty line. There is also discrimination against women as they have to work the same hours as men, but they earn less than men. Lastly, child labor is a prevalent problem in the coffee industry. In Kenya children make up 60% of the coffee workforce and in Honduras children make up 40% of the workforce [4].

### **Profit**

The supply of coffee generally trends towards overproduction, which results steep falls of demand and price. Between 1999 and 2004, the decline of coffee prices to fell to a 30 year low which started what is known as the Coffee Crisis. Since this time prices paid to coffee farmers have fallen below the cost it takes them to produce it. In the past ten years, coffee producing nations have seen their profits fall from 1/3 of the total revenue to about 1/10 of the total revenue. While wholesalers and retailers continue to sell at a profit, the dollars lost in the drop in profit has been borne almost entirely by the farmer [4].

### **Governance**

Oversupply issues and the Coffee Crisis can be linked to the policies of multi-national financial institutions, The World Bank and IMF, offered advice or loans to help low income countries to produce more coffee for export. These organizations encouraged poor coffee producing countries to liberalize trade and follow growth led by export. This leniency helped transform the coffee market from a managed market, in which governments played an active role both nationally and internationally, to a total free-market system. In this free-market system, the market itself sets the price of coffee. This has led to setting prices without regard to the cost for farmers. As mentioned above, the overproduction of coffee being dumped on the market has created a buyers' market. As a result, many of the poorest and most helpless citizens in the world are left to negotiate in an open market with some of the wealthiest and most influential citizens [5].

## **Planet**

### ***Cultivation***

A growing trend in coffee cultivation has been to replace shade grown techniques with sun cultivation techniques to increase coffee cherry yields. Sun cultivation involves cutting down trees, and high inputs of chemical fertilizers and pesticides. This causes a loss of organisms and many cases of soil erosion. Environmental problems, such as deforestation, pesticide pollution, habitat destruction, soil and water degradation, are the effects of most modern coffee farms and surrounding areas. In addition, with the decline of coffee prices, many farmers are unable to maintain their farms causing them to be destroyed and replaced by urban buildings. In Central America, less than 20 percent of the country's forests still remain [4].

### ***Processing***

It takes about 36 gallons of water to process enough beans for one cup of coffee, and coffee is often grown in countries where there is a water shortage. Water pollution is a major problem of the wet processing phase as used water from fermenting process is often dumped back into rivers. The main components of coffee wastewater are sugars, mucilage, organic matters, and flavanoids. This pollution can lower the pH of the water creating an acidic environment as well as dissolve the oxygen in the water thereby killing many aquatic organisms [6].

### ***Roasting***

Most international coffee trade consists of green coffee (dried berries) packed in 130 pound bags. International traders are mostly concerned with the uniformity and consistency of the green coffee. Roasting can take place at a processing company or at a coffee house. Roasters usually blend coffee of different origin and type together. Coffee beans are heated between 370 degrees and 540 degrees for 8 to 15 minutes, depending on degree of roast required. The longer the coffee is roasted the darker it becomes. During the roasting process moisture is lost and a chemical reaction takes place: starches are converted into sugar, proteins are broken down and the whole cellular structure of the bean is altered. The heating process creates the release of coffee oil, which is the essence of coffee. Finally, the coffee is grinded, packaged, branded, and sold to retailers [2]. Inputs needed for the roasting packaging phase are green coffee beans, electricity to power equipment, natural gas for roasting, and packaging materials (aluminum and paper). The outputs from this phase are roasted ground coffee in packaging, air emissions including carbon monoxide and carbon dioxide from the natural gas combustion in the roaster, and solid waste including coffee chaff from the roasting process [3]. The coffee is now ready for consumption in roasted ground form.

## **Roasting Impacts on P3G elements**

### ***Planet***

Coffee roasting is the largest contributor to reduced air quality out of all of the processes because coffee-roasting operations emit air pollutants such as particulate matter, volatile organic compounds (VOCs), organic acids and natural gas combustion byproducts. Because roasters are typically natural gas-fired, carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) emissions result from fuel combustion [7].

### ***People***

The air pollutants caused by roasting are visually unappealing and toxic to public health [7].

### ***Governance***

The EPA sets standards for emissions, but specific requirements vary at the state and local levels. Published standards are not readily available and may not be accurate [7].

### ***Profit***

Roasting companies purchase raw coffee from farmers for a price below the cost of growing the coffee. As a result, farmers are selling at a tremendous loss while branded coffee sells at a large profit. Because worldwide coffee production has exceeded coffee demand, the vast majority of coffee farmers are at the mercy of 'take it or leave it' pricing [4].

### **Consumption**

The consumption phase varies because there are so many different factors that come into play. Consumer nationality and tastes can alter the amount of coffee and water used. The type and brand of coffee machines can also alter the amount of inputs needed including energy consumption. Consumption can either take place at a commercial location such as a coffee shop or in the consumer's home. Inputs that are needed for the consumption phase are roast ground coffee, water, electricity to power coffee machine, and in some cases coffee filters. Outputs from the consumption phase consist of solid wastes including paper coffee cups, coffee grinds, packaging materials, and used coffee filters; all of which are typically disposed of after use [3].

### ***Consumption Impacts on the Planet***

Consumption of coffee has the largest impact on the Planet than any of the other P3G elements. According to the paper industry, American's will consume roughly 23 billion paper coffee cups in 2010. Typical paper coffee cups aren't made from recycled paper; instead most cups are manufactured using 100% bleached virgin paper. One reason for this is that FDA regulations are strict when it comes to allowing recycled paper pulp to be in direct contact with food and beverages. Also, recycled paper is not strong enough to hold liquids. Approximately 9.4 million trees will be cut down in 2010 to manufacture the nearly 23 billion coffee cups in demand. To make coffee cups even more durable, most have a polyethylene inside coating to prevent leaks. As these cups decompose, the polyethylene releases methane--a greenhouse gas 23 times worse than carbon dioxide, according to the Environmental Defense Fund. It is estimated that approximately 363 million pounds of solid waste will be created in 2010 resulting from the manufacturing of 23 billion paper coffee cups [8].

It is important for coffee companies, NGOs, and government agencies to identify each step of the coffee value chain that has a negative impact on P3G elements. Once these unsustainable areas are identified, it is the responsibility of the above organizations to implement changes that will ensure the future sustainability the very important coffee bean.

**FIGURE 2: P3G SUMMARY GRID**

**SUSTAINABILITY INITIATIVES IN THE COFFEE INDUSTRY**

	People	Planet	Profit	Governance
Cultivation & Processing (Producing Country)	<ul style="list-style-type: none"> <li>• Poor Working Conditions</li> <li>• Poor living conditions</li> <li>• Discrimination against women</li> <li>• Child labor</li> </ul>	Cultivation: <ul style="list-style-type: none"> <li>• Deforestation</li> <li>• Habitat Destruction</li> <li>• Pesticide Pollution</li> </ul> Processing: <ul style="list-style-type: none"> <li>• Water Use</li> <li>• Water Pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Overproduction</li> <li>• Coffee Crisis – steep declines in the price for coffee</li> </ul>	<ul style="list-style-type: none"> <li>• World Bank and IMF encouragement to liberalize trade and offer loans</li> <li>• Free Market System</li> </ul>
Roasting (Consuming Country)	<ul style="list-style-type: none"> <li>• Air pollution is visually unappealing and toxic for public health</li> </ul>	<ul style="list-style-type: none"> <li>• Air pollution from natural gas combustion</li> </ul>	<ul style="list-style-type: none"> <li>• Large profits from purchasing coffee from farmers at below cost</li> <li>• Freedom of ‘Take it or Leave it’ pricing</li> </ul>	<ul style="list-style-type: none"> <li>• Varied EPA standards for emissions</li> <li>• Standards not readily available</li> </ul>
Consumption (Consuming Country)		<ul style="list-style-type: none"> <li>• Billions of one-time-use, disposable paper cups which are not made from recyclable paper are manufactured and disposed of annually</li> <li>• Coffee grind waste if not recycled</li> </ul>		<ul style="list-style-type: none"> <li>• FDA regulations are strict when it comes to allowing recycled paper pulp to be in direct contact with food and beverages</li> </ul>

Over the past decade, agriculture sustainability standards have grown in popularity due to a number of factors including: interest in the economic health of developing countries, interest in health and safety of food, and the realization that agricultural expansion represents the greatest threat to global biodiversity [9]. Sustainable agriculture refers to practices that promote economic viability for farmers, environmental conservation, and social responsibility across the value chain from farmer to consumer [10]. Daniele Giovannucci, a senior consultant from the World Bank explains, “In the former age of national capitalism, the achievement of market fairness was embedded in a normative framework generated by government, labor unions, and perhaps religious authority. In the current age of global capitalism, new actors such as NGOs, industry associations, and public-private partnerships provide the normative framework that corporations use for social legitimacy” [10]. The liberalization of the coffee industry has coincided with the emergence of a number of voluntary regulatory systems.

Coffee is one of the first internationally traded products where joint efforts were undertaken to develop standards on processes that address socio-economic and environmental concerns [10]. The most important voluntary regulatory systems in the coffee sector include: the Sustainable Agriculture Information (SAI) Platform developed by major food transnational corporations; the Common Code for the Coffee Community developed by major stakeholders in

the coffee industry; third party certifications including Organic, Fair Trade, Rainforest Alliance, and Utz Certified; as well as first party regulation such as Starbucks' CAFÉ program.

## **Sustainable Agriculture Information Platform**

In 2002, Nestle, Unilever, and Danone created the SAI Platform to support the development and implementation of sustainable agriculture practices involving different stakeholders along the food chain. Currently, the SAI Platform has 25 members including Coca-Cola, Danone, General Mills, Kellogg's, Kraft Foods, McDonalds, Nestle, PepsiCo, Sara Lee, and Unilever. It is the only global food industry initiative that gathers and develops knowledge on sustainable agriculture. The ultimate goal of the SAI is "the definition and implementation of commodity-specific guidelines for sustainable agriculture which are harmonized along the food chain" [11]. The platform has worked on the introduction of common and minimum sustainability standards for coffee and suitable indicators for sustainable practices, including social, economic, and environmental concerns. SAI Platform's Advisory Council, which consists of NGOs, farmer organizations, and research institutes, was formed in 2004 to provide critical advice on the progress of the initiative and to ensure the successful development of sustainable agriculture worldwide [11].

According to Robert Muradian of the World Bank, the SAI codes set "minimum good practices" for coffee sustainability [12]. The Platform provides very basic recommended practices on sustainable farming, economic sustainability, social sustainability, and environmental sustainability. As a result the overall entry barrier of this code is very low and there is no impact on price premiums for farmers [12].

## **The Common Code for the Coffee Community**

The Common Code for the Coffee Community (4C) launched in January 2003 as an attempt to create a voluntary scheme among major stakeholders in the coffee industry. Like the SAI platform, the 4C aims at developing "a global code for the sustainable growing, processing, and trading of mainstream coffee," but it involves other agents in the coffee chain apart from TNCs [12]. Participants of the 4C have to pay minimum salaries, abandon child labor, allow trade union membership, and stick to international standards on pesticide and water pollution. The code stresses compliance with the International Labor Organization (ILO) regulations and good environmental practices very much in line with the minimum standards shared by the SAI Code [12]. The 4C Code of Conduct includes baseline requirements for the sustainable production, processing and trading of coffee and eliminates unacceptable practices [14].

Similar to the SAI code, overall entry barriers of the 4C are very low due to minimal required standards. Because several branded food companies participate in the 4C initiative, meetings cannot be used to discuss prices, pricing policies, or any marketing policy with an indirect effect on pricing due to antitrust legislations in many countries [13]. As a result the expected impact on price premium to farmers involved in the 4C initiative is very low.

## **Third Party Certifications**

Third party certification schemes are by far the most important voluntary regulatory systems applied to the coffee industry. Consumer behavior is a critical factor in determining the reach of certification schemes involving price premiums. The main goal of certification is to educate the final consumer about product attributes which result in the price premium. Sustainable certification gives consumers confidence that they are choosing a product that is sustainable. Coffee is probably the most important sector in which "sustainable" certifications have been applied so far [12].

### ***Fair Trade Certified Coffee***

The main goal of Fair Trade certification is to guarantee a minimum price at the farmer level by charging a price premium to consumers. All certified producers receive price premium over the coffee price on the world market. It also aims to shorten the chain by excluding the middlemen in producing countries and to promote long-term relations between suppliers and buyers. The Fair Trade Labeling Organization's policies regarding the trade of coffee focus exclusively on smallholder farmers. Smallholder farmers can only join the Fairtrade initiative if they

form organizations, such as cooperatives or associations “which are able to contribute to the social and economic development of their members and their communities and are democratically controlled by their members” [13]. Another special feature of the Fairtrade initiative is the pre-financing agreement. Through this agreement, buyers pay producers 60% of the contract value at harvest while the remaining 40% is paid upon delivery of the coffee [13]. At the other end of the value chain, FLO wants to reach a vast group of consumers by selling labeled brands in supermarkets. This indicates that FLO’s strategy is to sell non-mainstream coffee to a mainstream public [12].

The Fairtrade standards for coffee are essentially a set of social standards. The environmental development standards are not as comprehensive as the social development standards. Basic environmental aspects are covered such as use of pesticides, protection of natural waters, erosion and waste management. A Certification Committee has the overall responsibility for the certification of producers in accordance with the FLO standards. Initial certification can only be granted for a maximum of two years. After this period, the certified producer has to be inspected again [13]. Studies assessing the local impact of Fair Trade certification in producing countries in general agree that it has been beneficial for producers in terms of income generation, organizational skills, capacity building, and resilience to external shocks [12].

There has been some criticism surrounding Fair Trade coffee. Critics believe that the Fair Trade certification is abused by marking up retail prices significantly, while only providing the growers marginally higher prices. There is no significant difference between Fair Trade and conventional chains in regard to distribution of income in producing and consuming countries; all the system does is enlarge the total income size of the chain, by means of asking a price premium to consumers [12]. Another criticism of Fair Trade coffee has to do with quality. The main factor in the coffee consumer’s decision to buy in the specialty segment is taste. The quality of Fair Trade coffee is reported to be very inconsistent, therefore the consumer has to face a trade-off between good feelings and good taste when buying Fair Trade. This lack of a consistent quality policy and its premium price at shelf may impose limitations on the market share of Fair Trade coffee [12]

### ***Organic Certified Coffee***

Organic coffee certification is based on a production management system that aims at promoting and enhancing natural soil activity and prohibits synthetically produced chemicals [10]. Organic certification sets rigorous standards for recycling wastes, reducing water pollution, chemical inputs, erosion, and improving soil quality. Organic certified coffee must meet the following criteria: it must be grown on land without synthetic pesticides; it must have a sufficient buffer between the organic coffee and the closest traditional crop; it must have a sustainable crop rotation plan to prevent erosion and depletion of soil nutrients [12]. In the last decade, organic certified product popularity in many major markets brought this standard into the realm of public regulation. Competition, concern over norms, and deceptive labeling practices led to Organic Certified public regulation that is now in place in the European Union, the United States, and Japan [10]. The main sources of entry barriers to organic certification are the large transaction costs involved in the strict regulation. Organic certification offers a flexible premium to the farmer, depending on market interactions between buyers and suppliers [12].

Organic certification has been criticized for altering traditional governance practices in rural communities by imposing paper burdens due to the auditing method, and externally designed procedures and practices. In the 1960s through the 1980s, the organic food industry was composed of mainly small, independent farmers selling locally. Organic Certification was based on trust between farmer and consumer. Critics view recent regulatory certification as a barrier to entry for small producers by burdening them with increased costs and paperwork. This imposition of strategies, codes, and auditing methods designed by agencies in the industrialized world has been identified as one of the main challenges facing Organic Certification [12].

### ***Rainforest Alliance Certified Coffee***

Rainforest Alliance Certified is a label that sets certifiable standards for eco-friendly, otherwise known as shade grown coffee. The mission of this organization is to, “protect ecosystems and the people and the wildlife that live within them by developing and implementing best management practices and standards for commodity crops, providing incentives to farmers to meet those standards, and encouraging the marketing industries and consumers to support farmers who are making on-farm improvements toward sustainability” [15]. Farmers, companies, cooperatives, and landowners that participate in this program have to meet standards including: ecosystem conservation, wildlife conservation, fair treatment and good conditions for workers, community relations, integrated crop management, waste management, conservation of water resources, and soil conservation. One of the major factors necessary to become Rainforest Alliance Certified is the practice of shade grown coffee cultivation. Shaded coffee plantations are environmentally and quality superior to intensive sun-exposed plantations. However, there is a negative relationship between shade cover and coffee yields, which gives farmers a major incentive for the transformation from shade grown coffee to sun grown coffee [12]. Sun-grown coffee requires numerous chemical fertilizers, insecticides, and pesticides to be added to promote growth. The removal of trees to create a sun-grown plantations cause an immediate loss in biodiversity, both in the types of trees and plants that are eliminated, as well as the animals that depend on them. Farms that meet these standards are certified, and may use the Rainforest Alliance certified label in marketing materials and on their products [15].

The Rainforest Alliance aims to enlarge the impact of its certification in the shortest period of time by encouraging adoption of its policies among large coffee estates [13]. No premium price is paid to farmers for Rainforest Alliance Certified Coffee. The Rainforest Alliance states that, “The certification process benefits farmers by increasing efficiency, reducing costly inputs and improving farm management. Farm workers benefit from a cleaner, safer, more dignified workplace where their rights are respected. Certified farmers have better access to specialty buyers, contract stability, favorable credit options, and premium markets. Most certified farmers are able to utilize their certification to receive a premium price.” [15]

The Rainforest Alliance is criticized because of its lack of a minimum price guarantee which leaves farmers vulnerable to market price variations. Due to its lack of a guaranteed price minimum, critics often refer to Rainforest Alliance Certified as “Fair Trade Light” because it gives companies a cheap way to tap into the ethical consumer market. In March 2007, Ethical Corporation reported that due to low coffee market prices, Rainforest Alliance Certified farmers on average receive \$1.20 per pound, or 9% less than the Fair Trade minimum price and premium and 20% less than the average price paid to Fair Trade certified producers [16]. Rainforest Alliance Certification has also been criticized for allowing the use of its seal on coffee containing a minimum of 30% certified coffee beans [13]. According to Michael Conroy, chairman of the board for TransFair USA, this use of the seal is the “most damaging dimension” of [Rainforest Alliance's] agricultural certification program and “a serious blow to the integrity of certification” [16].

### ***Utz Certified***

Utz Certified (which means ‘Good Inside’) is a coffee certification program that was launched in 2002, and claims to be the largest coffee certifier in the world. Utz Certified, formerly known as Utz Kapeh, is an independent foundation that has developed a certifiable code of conduct for growing sustainable coffee primarily on the combined basis of good agricultural practices of the determined by the European Retailer Group (EurepGAP) and the social guidelines outlined by the SAI Platform. It provides minimum assurance that basic growing and sourcing conditions are met and is less rigorous than most certifications [10]. The emphasis of the Utz Certified Code of Conduct is on compliance with local labor and environmental laws and good management practices. It incorporates social, cultural, environmental, managerial, and economic issues. In order to be recognized as an Utz Certified supplier, farmers have to comply with the standards set in the Code of Conduct, and in order to use a label on a package 90% of the coffee has to be certified. Similar to the Rainforest Alliance, Utz Certified is directed towards medium and large scale farmers [13].

In terms of pricing, Utz Certified recommends the use of the Sustainability-Differential: the belief that Utz Certified coffee has added value because it assures buyers their coffee has been produced according to baseline standards for

responsible production. This added value for brands and the cost of compliance by farmers should lead to this Sustainability Differential. In times of high coffee prices, the full Sustainability Differential is determined between buyers and sellers in the negotiation process. In time of low coffee prices, Utz Certified provides guidelines for the minimal price to both buyers and sellers who negotiate the actual Sustainability Differential. In both cases, Utz Certified does not interfere in the price negotiations between these parties [13]. This initiative is very attractive for roasters and traders because they are not required to pay premium prices.

UTZ Certified certification, like the Rainforest Alliance coffee certification program, has been called "Fair Trade light" by critics, as it offers producers no minimum or guaranteed price for their crop. UTZ certified producer organizations are therefore highly vulnerable to the volatility of the coffee market. This major price difference makes the Utz Certified label considerably cheaper than Fair Trade for companies interested in entering the ethical market. Conroy has also criticized Utz Certified, "The environmental standards of Utz Certified are far weaker than those of either Fairtrade or Rainforest Alliance". He explains that Utz Certified's standards approve of genetically modified coffee plants so long as farmers obey local regulations on their use. Chemical fertilizers can be used as long as the quantity is approved by an external advisor. Chemical pesticides that are acceptable in the European Union, the United States, or Japan can also be used coffee farms [16].

## **First Party Voluntary Regulatory Systems**

### *Starbucks Coffee Company*

Large coffee producers have also jumped on the bandwagon of adopting sustainability standards. In 2000, Starbucks Coffee Company and TransFair USA announced a breakthrough alliance to promote Fair Trade Certified coffee through its 'Crop to Cup' Program. TransFair USA, a nonprofit agency, is the only organization providing third party certification of Fair Trade products in the US. By monitoring trade from crop to cup, TransFair guarantees that Fair Trade Certified products were grown and traded responsibly. Under the agreement, Starbucks developed marketing, promotional, and educational materials about Fair Trade Certified coffee and displayed TransFair USA's Certified label on coffee that has been grown, processed, traded, and marketed in accordance with the international Fair Trade criteria [6].

In 2002, Starbucks took sustainable production one step further and was the first multinational company to announce that it had developed its own preferred supplier system, known as the 'Coffee and Farmer Equity Practices Program (CAFÉ)' [10]. The ultimate goal of the CAFÉ program is to create, "a fully sustainable coffee production supply chain" [17]. The preferred supplier program is not a code of conduct, but a flexible point system by which performance in 5 sustainability categories is rewarded. The categories include: product quality, economic accountability, social responsibility, coffee growing environmental leadership, and coffee processing environmental leadership [17]. The preferred supplier status is awarded to producers that achieve a score of 100 points on a scale of 100. As more points are earned, producers obtain a higher level of purchasing preference, until the preferred supplier status is reached [13]. Criteria for these guidelines are based on the Conservation Principle for Coffee Production, which was elaborated by jointly by the Consumers Choice Council, Conversation International, the Rainforest Alliance, and the Smithsonian Migratory Bird Centre [12]. The point system based on the CAFÉ guidelines emphasize environmental aspects and transparency rather than social conditions; producers can earn up to 60 points when complying with all environmental standards, they can only earn 40 points when abiding by all social criteria [17]. Monitoring Starbucks' principles is carried out by third parties and the costs are covered by farmers. Growers who qualify to participate in this program obtain considerable price premiums as the CAFÉ program also includes a scorecard system for calculating price premiums to farmers meeting the standards [12].

**FIGURE 3: SUSTAINABLE INITIATIVES SUMMARY GRID**

Key Characteristics:	SAI Code	4C	Third Party Certifications				Starbucks CAFÉ Program
			Fair Trade	Organic	Rainforest Alliance	Utz	
Distance between standards and “common” practices (Stringency)	Short	Short	Large	Large	Short	Short	Short
Importance of “extra-standards” information (Specificity)	Low	Low	High	Low	Low	Low	High
Monitoring	Third Party (Paid by Farmers)						
Overall entry barrier	Low	Low	High	High	Low	Low	High
Expected impact on price premium to farmers	Very Low: Flexible	Very Low: Flexible	High: Fixed	Medium: Flexible	Low: Flexible	Low: Flexible	Medium: Flexible
Target Grower Group	Any Kind	Any Kind	Small Land Holders	Any Kind	Large Estates	Large Estates	High Quality Growers

According to Giovanucci, “The overall impact of sustainability standards on producers depends on the balance between the extra costs of matching these standards and the extra income earned from the premium plus/minus the impact of changing farming practices on yields and quality” [10]. For Organic Certified, yields and quality tend to improve in areas where chemicals were not used previous to conversion. However, in areas where chemicals were previously used quality may or may not improve, but yields often suffer. Although the monetary cost for Organic certification can be as low as \$50 per farmer, in some cases it can be extremely expensive for smallholders in countries where there are no recognized local certifiers [10].

The overall impact of Fair Trade as well as Starbucks’ CAFÉ program is often positive since farmers do not pay for certification, the minimum price guaranteed to farmers is relatively high, and the necessary changes in farming systems are fairly limited [10].

For Rainforest Alliance Certification (shade grown), the impact on yields remain stable and labor inputs costs tend to increase. On the positive side, coffee quality may improve, soil fertility improves, and coffee trees tend to live longer. Both Rainforest Alliance and Utz Certified focus on larger growers and estates where certification costs can be more readily absorbed. The SAI Platform and the 4C recommend minimal sustainability standards and although cost of entry is low, there is no major impact on yield/quality. Although these initiatives support the minimum wage according to national labor laws, none of them guarantee a minimum price to farmers [10].

As most standards currently stand certification procedures are not always transparent and smaller producers may find it difficult to understand or meet certain standards. “In order for standards to work for developing country producers the following four factors must be assured: 1) transparency and clarity of standards and their requirements; 2) effective participation by developing country producers in key decisions over standard setting and monitoring procedures; 3) reasonable access; 4) just compensation for the efforts required of producers to meet and monitor elevated standards” [10].

## STARBUCKS GLOBAL RESPONSIBILITY INITIATIVE: SHARED PLANET

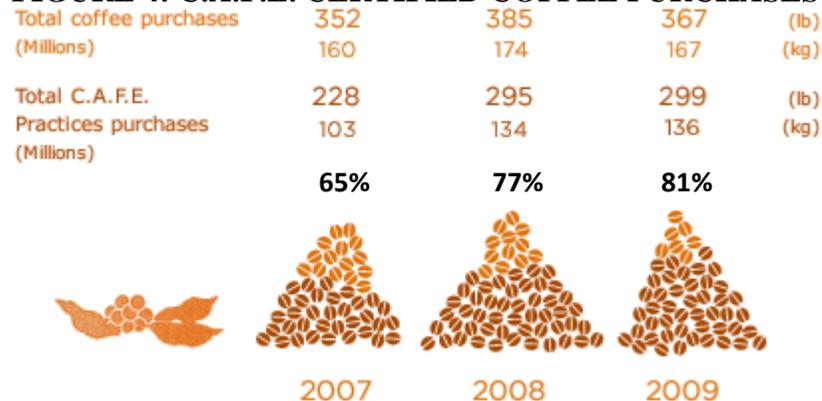
Starbucks has a long history of doing business in ways that are socially, environmentally, and economically responsible. Their commitment to doing the right thing has always been central to how they operate as a company. Starbucks' mission statement is, "To inspire and nurture the human spirit – one person, one cup, one neighborhood at a time" [18]. In addition to the corporate mission statement, Starbucks' has also implemented an environmental mission statement: "Starbucks is committed to a role of environmental leadership in all facets of our business" [18]. Starbucks fulfills this mission by making a commitment to: understanding environmental issues; developing innovative and flexible solutions to bring about change; striving to buy, sell, and use environmentally friendly products; instilling environmental responsibility as a corporate value; measuring and monitoring progress for each project; and lastly, encouraging all partners to share in this mission.

As Starbucks has grown in size, so has their ability to drive positive change in communities around the world. In 2008, Starbucks set goals in areas where they believe they can have the greatest impact: ethical sourcing, environmental stewardship, and community involvement. Starbucks refers to these priorities as their 'Shared Planet' initiative: "Our commitment to sourcing our products ethically, improving our communities, and reducing our environmental impact" [19].

### Ethical Sourcing [19]

Starbucks has always believed in buying, roasting, and serving the highest quality coffee in the world. By promoting responsible growing practices, Starbucks is able to serve a great cup of coffee while simultaneously helping to improve the lives of farmers and protect the environment. In 2008 Starbucks set a goal to purchase 100 percent responsibly grown and ethically traded coffee by 2015. Starbucks accepts third-party certifications such as Fairtrade coffee as well as their coffee that is certified by their own 'Coffee and Farmer Equity' (C.A.F.E.) program. In 2008, Starbucks also implemented two shorter term coffee purchasing goals that they wanted to achieve by 2009. In 2008 C.A.F.E verified coffee accounted for 77% of Starbucks' total coffee purchases; the first goal was to increase the annual purchases of coffee verified through C.A.F.E. Practices. Starbucks was able to achieve this goal in 2009 and increased its C.A.F.E. verified coffee sales to 81% of total purchases.

**FIGURE 4: C.A.F.E. CERTIFIED COFFEE PURCHASES**



Starbucks complements the purchases of C.A.F.E. verified coffee with purchases of Fairtrade certified coffee to promote a variety of thorough production standards. Starbucks' second goal was to double its purchases of Fairtrade certified coffee in 2009. Starbucks was able to achieve this goal, with purchasing increasing from 19 million pounds in 2008 to 39 million pounds in 2009.

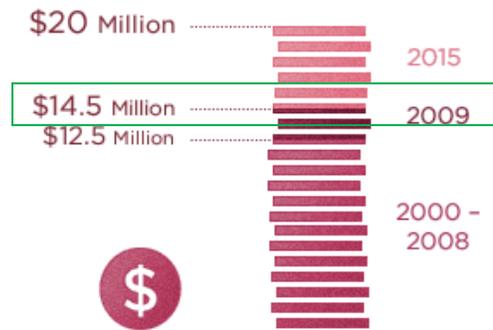
**FIGURE 5: FAIRTRADE CERTIFIED COFFEE PURCHASES**



This action has made Starbucks the largest purchaser of Fairtrade certified coffee in the world. Additionally, Starbucks increased their year-over-year purchases of Certified Organic coffee from 10 million pounds in 2008 to 14 million pounds in 2009.

By purchasing Certified Organic and other third party certified coffee, Starbucks hopes to not only meet their customer’s needs but also hopes to help protect the environment and famers in coffee-growing regions. One way Starbucks is working to maintain their supply of high quality coffee is by investing in farmers and their communities through alternative loan programs. During growing and harvest seasons, many farmers are forced to use their small reserves to cover cultivation expenses until they can sell their crops. Some farmers may experience a cash shortage forcing them to sell their crops early and for a lower price to local buyers. Alternatively, farmers may borrow money at exorbitant interest rates which cuts into their profits and can lead to a revolving pattern in the future. In 2008, Starbucks announced a goal to nearly double their investment in farmer loans from \$12.5 million to \$20 million by 2015. As of 2009, Starbucks has reached a total or \$14.5 million dollars in farmer loans and is on track to reach the 2015 goal.

**FIGURE 6: INVESTMENT IN FARMER LOANS**



The loans that were given in 2009 alone helped more than 72,000 farmers who grow Starbucks coffee in six countries to finance pre-harvest activities, make operational improvements, and cover export costs.

Starbucks sources the majority of its coffee from family farms with less than thirty acres of lands, and is therefore committed to helping small-scale farmers thrive now and in the future. One way Starbucks has committed to help small scare farmers is through the Small Farmer Sustainability Initiative (SFSI) which was launched in 2009 with partnership from TransFair USA and Fairtrade Labelling Organization International. This three year pilot program builds upon Starbucks’ existing efforts to foster economic and social stability in the coffee industry. Through SFSI, Fairtrade farmer cooperatives are eligible to apply for loans from the funds supported by Starbucks.

## **Environmental Stewardship**[19]

In order to maintain their high quality standards and help preserve the planet for future generations, Starbucks has taken a number of actions to reduce their environmental impact. Starbucks has joined forces with suppliers, business partners, local municipal governments, environmental NGOs, and experts from the academic sector to address their common challenges and to advance a number of important initiatives including climate control, recycling, and energy and water conservation.

### ***Climate Control***

Because the coffee industry relies so heavily on a healthy agricultural system to produce high-quality products, Starbucks views climate change as a critical issue. Starbucks believes they can make a difference by advancing the development of innovative solutions and building strategic relationships with policy leaders and industry experts. Starbucks' goal is to, "support programs that facilitate farmers' access to carbon markets, allowing them to generate additional income while helping to prevent deforestation" [19]. Through Starbucks' partnership with Conservation International, they have been able to make progress on this goal by piloting forest conservation incentive programs that link farmers to carbon markets in twenty-nine coffee growing communities in Chiapas, Mexico, and Sumatra, Indonesia. This program aims to reduce carbon emissions from the burning and clearing of forests and to help farmers generate income from emerging carbon markets. In 2009, Starbucks also became a member of a coalition called Business for Innovative Climate and Energy Policy (BICEP), which aims to stimulate clean the clean energy economy and reduce global warming by advocating for strong legislation in the U.S.

### ***Recycling***

One major challenge that the coffee industry faces is the waste that is generated from disposable coffee cup usage. It is estimated that in 2010 twenty-three billion disposable cups will be used which equates to 9.4 million trees being cut down and will generate 363 million pounds of solid waste [8]. Another challenge is that the majority of paper coffee cups are made from 100% bleached virgin paper. The reason for this is that the FDA has strict regulations when it comes to allowing recycled paper pulp to be in direct contact with food and beverages. Additionally, recycled paper typically is not strong enough to hold liquid. Starbucks is currently working a number of recycling initiatives to advance their progress in this area.

Starbucks first recycling goal is to develop a comprehensive recyclable cup solution that would ensure that their cups would be universally recyclable in form and in practice by 2012. In 2009 Starbucks held a summit with local governments cup manufacturers, recyclers to identify the steps required to make their cups fully recyclable. This summit revealed that there is a fundamental need to improve recycling infrastructure while continuing to explore the materials and design of cups. It is important to point out that Starbucks has made some progress in the use of post-consumer recycled fiber in their cups. In 2007 Starbucks unveiled the world's first recycled beverage cup from 10% post-consumer fiber. While this may sound like a small step, it was the result of a ten year project by Starbucks culminating in the approval from the FDA. Since the launch of this semi-recycled cup, Starbucks has been able to conserve more than 60,000 tons of virgin wood fiber, the equivalent of more than 422,000 trees. While Starbucks' has taken some great first steps to achieving their goal, there is still a lot of work to be done in order to create a fully recyclable cup by 2012.

In 2009, approximately 70% of stores in North America that control their own waste collection recycled items, however the majority of items recycled were from back-of-store items that are widely accepted for recycling, such as cardboard boxes. Although many of Starbucks' customers order their beverages 'to go' another goal is for Starbucks to implement front-of-store recycling in company owned stores by 2015. Starbucks has only made slight progress toward this target in 2009, with recycling bins present in roughly 5 percent of company owned stores in North America.

Starbucks last goal relating to recycling is to serve 25% of beverages made in stores in reusable serveware or tumblers by 2015. In 2009 customers brought their own tumblers into stores more than 26 million times. Although

serveware and tumbler use accounted for only 1.5% of total beverages served in 2009, this shift in behavior kept nearly 1.2 million pounds of paper out of landfills.

**FIGURE 7: SERVEWARE AND TUMBLER USAGE IN STARBUCKS STORES**

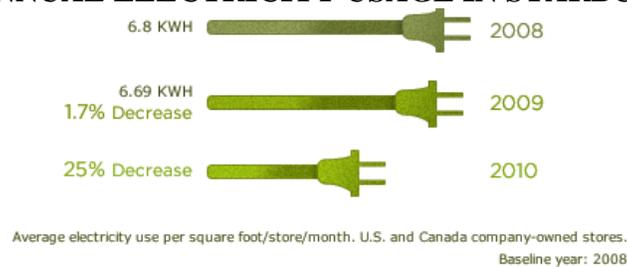


Starbucks is rewarding customers for tumbler use by offering a beverage discount. Starbucks realizes that they will need to work hard to reach their goal of 25% usage by 2015.

**Energy Reduction**

Energy usage accounts for roughly 80% of Starbucks’ carbon footprint, making it their greatest opportunity for improvement. In 2008, Starbucks announced a goal of reducing its energy consumption by 25% in company owned stores by 2010. Starbucks has focused on lighting efficiencies to help achieve this goal. They began looking into the substitution of incandescent and halogen lighting with LED lighting in 2008, however found that at that time there were no commercially available LED products that met their aesthetic and functional requirements. As a result, they turned to General Electric to identify a solution. With input from Starbucks, GE was able to develop a highly energy efficient LED product that worked with the in-store design approach and fit into existing fixtures. Starbucks began implementing the LED lighting conversion program and completed installation in more than 1,000 stores by 2009.

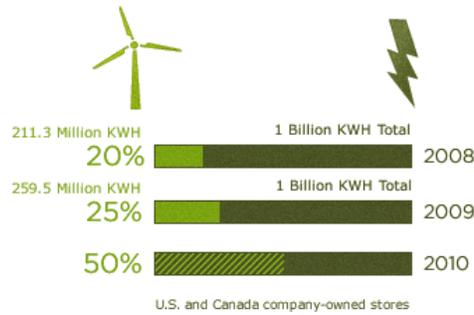
**FIGURE 8: ANNUAL ELECTRICITY USAGE IN STARBUCKS STORES**



Although their electricity use decreased by only 1.7% from 2008 to 2009, Starbucks is projecting a considerable reduction following global implementation of the LED conversion project in 2010.

Starbucks’ second goal relating to energy usage is to purchase renewable energy equivalent to 50% of the electricity used in company stores by 2010. In 2009 Starbucks purchased renewable energy certificates equivalent to 25% of their electricity use.

**FIGURE 9: SHARE OF RENEWABLE ENERGY USAGE IN STARBUCKS STORES**

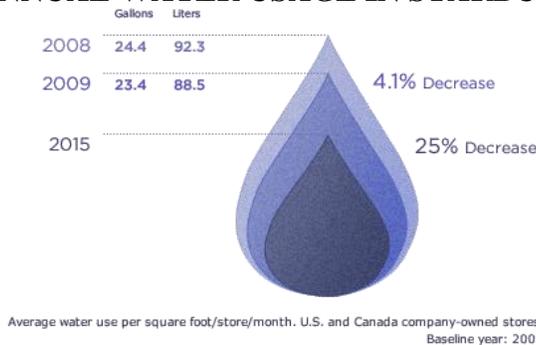


Starbucks believes that they are on track to reach their goal of increasing their renewable energy purchases to 50%.

**Water Reduction**

Of all the resources on which the coffee industry relies, water is one of the most vital. The majority of water that is used in Starbucks stores is used to make coffee and tea beverages and to run equipment such as dishwashers and ice machines. In 2008 Starbucks announced its goal to reduce water consumption by 25% in company owned stores by 2015. In 2009 Starbucks conducted a water footprint audit to analyze water usage. Findings from the study helped Starbucks identify focus areas to enable them to reach their goal by 2015. Dipper wells, otherwise known as sanitizing sinks, were found to cause considerable water waste and were pointed out as an area of opportunity. These fixtures used a continuous stream of running water to rinse away food residue and to keep utensils clean, and to prevent bacterial growth. Starbucks began installing manually operated hand-meter faucets in the US. This mechanism saves approximately 150 gallons of water per store per day. The implementation of these manual faucets has allowed Starbucks to reduce its water usage by 4.1% in 2009, and has put Starbucks on track to reach its goal of 25% reduction by 2015.

**FIGURE 10: ANNUAL WATER USAGE IN STARBUCKS STORES**



Starbucks is currently assessing the opportunity to roll out the manual faucets more broadly. In locations where they are not available yet, stores are adopting practices including using spoons once and setting them aside to be cleaned and sanitized with other dishes.

**Community Involvement**[19]

Starbucks is committed to helping communities thrive, regardless of if it is on the farms that grow coffee or in the neighborhoods where their stars are located. One of Starbucks’ overall community involvement goals is to rally their partners and customers to contribute more than one million hours of community service by the year 2015. Starbucks is aiming to achieve this goal by facilitating community efforts in which their employees and customers can participate. In 2009, at the Starbucks leadership conference in the US, nine thousand partners contributed more than 36,000 hours of service to help rebuild the city of New Orleans following the devastation of Hurricane Katrina.

In total, Starbucks' partners and customers around the world contributed more than 186,000 hours of community service in 2009.

**FIGURE 11: STARBUCKS ANNUAL HOURS OF COMMUNITY SERVICE**



Unfortunately this represents a 24 percent decrease compared to 2008, which Starbucks attributes to global economic changes that required a realignment of the business and limited the capacity to coordinate community service activities. Starbucks still has a long way to go to achieve their goal of one million hours by 2015.

Another goal Starbucks has is to engage 50,000 young people to innovate and take action in their communities by 2015. Starbucks believes this initiative will encourage problem solving, help participants gain valuable life skills, and give partners and customers another opportunity to support local causes. In 2009 Starbucks awarded \$2 million in Starbucks Shared Planet Youth Action Grants, which enabled them to engage more than 20,000 young people in community activities. This has allowed Starbucks to reach 42 percent of their 2015 goal. One of the 2009 recipients was the Food Project Internship Program, which involves young people in entrepreneurial ventures to create personal and social change through sustainable agriculture. In 2009, Starbucks contributions including volunteer service, youth engagement, natural disaster relief, and other efforts totaled more than \$17 million.

## CONCLUSION

Coffee affects the lives of over 25 million farmers in more than 70 countries around the world, many of which are developing regions [1]. The coffee value chain is made up of the four main phases: Cultivation, Processing, Roasting, and Consumption. Each phase in the process has environmental, social, economic and governance issues that affect the future sustainability of extracting the coffee bean. Traditional coffee production methods can often adversely affect the surrounding environment through the use of harmful chemicals and unnecessary deforestation. Social issues arise due to poor labor practices combined with unfair wages and low prices of coffee.

Over the past decade agriculture sustainability standards have grown in popularity due to an increased interest in the economic health of developing countries as well as the realization that agricultural expansion represents the greatest threat to biodiversity. Coffee is one of the first internationally traded products where joint efforts were undertaken to develop standards and processes that address these socio-economic and environmental concerns [10]. The most important voluntary regulatory systems in the coffee sector include: the Sustainable Agriculture Information (SAI) Platform, the Common Code for the Coffee Community, and third party certifications including Organic, Fair Trade, Rainforest Alliance, and Utz Certified.

Large coffee producers have also adopted sustainability standards across each stage of the value chain. Starbucks has a long history of doing business in ways that are socially, environmentally, and economically responsible. In 2008, Starbucks created the 'Shared Planet' initiative in which they set goals in areas where they believed they could have the greatest impact: ethical sourcing, environmental stewardship, and community involvement. Starbucks has done a great job monitoring these goals and is on track to meet the majority of them in 2014.

Starbucks has been recognized for many of its achievements with its sustainability initiatives. In 2005, The World Environment Center (WEC) selected Starbucks Coffee Company to receive its 21st Annual Gold Medal for International Corporate Achievement in Sustainable Development within the specialty coffee industry. This leadership was demonstrated by Starbucks development of Coffee and Farmer Equity (C.A.F.E.) Practices, a set of environmentally, socially, and economically responsible coffee buying guidelines created in conjunction with Conservation International that are designed to contribute positively to the livelihoods of coffee farmers while placing an emphasis on environmental conservation and supply chain transparency. The WEC Gold Medal Award is one of the most prestigious ways of recognizing a global company's ongoing commitment to the practice of sustainable development. Only global manufacturing, processing or service corporations that can document well implemented, outstanding and sustained success are eligible to compete for the award. A potential applicant company must demonstrate global vision and a commitment to sustainable development through innovative application of policies, and international economic, environmental, and social responsibilities [20]. In 2010, The Ethisphere Institute, a leading international think-tank dedicated to the creation and sharing of best practices in business ethics, corporate social responsibility, and sustainability, named Starbucks one of the 'World's Most Ethical Companies'. The World's Most Ethical Companies designation recognizes companies that truly go beyond making statements about doing business 'ethically' and translate those words into action. The World's Most Ethical Company designation is awarded to those companies that have leading ethics and compliance programs, particularly as compared to their industry peers. Starbucks was the only recipient of the award in the Restaurant and Café category [21]. Although Starbucks purchases only two percent of the world's coffee, it is clear that it has used its position in the global marketplace to demonstrate how innovation in combining corporate social responsibility and business strategy can lead to long-term economic and environmental sustainability.

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## AUTHORS PROFILES

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