



The Sustainability of Coffee

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Foundations of Global Environmental Sustainability

Introduction

In today's world the consumption of coffee has become so robust that it has become the second most traded commodity in the world. Americans alone spend \$40 billion on coffee annually. As it stands right now, coffee is largely unsustainable through the processes of production, transport and trade. We evaluated the sustainability of coffee through the three pillars of sustainability: economic, social, and environmental.

Analysis

Environment

- Sun Grown Coffee
 - Began in 1970 due to market demands
 - Plantations with no forested canopy
 - Fertilizers become necessity, significantly high erosion rates, exhausts soil inhibiting it to be grown in after a couple decades, destroys bird and native species habitats
 - Use of sun resistant varieties such as Robusta or hybrid of Arabica and Robusta
 - Lower quality but higher yields
- Shade Grown Coffee
 - Grown within natural or managed forest landscapes
 - Lower chemical inputs, natural pest control, prevents topsoil erosion and is a valuable habitat for native plant and animal species
- Rainforest Alliance and Fair Trade promote and teach sustainable techniques



Figure 1. Shade Grown Coffee

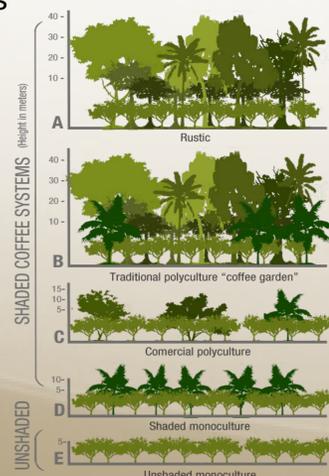


Figure 2. Types of shaded and sun grown coffee

Social

- The average American drinks 3.1 9oz cups of coffee a day



- The average amount of caffeine intake for Americans is 300mg
- 100 mg per day can lead to physical dependence and withdrawal symptoms upon abstinence
- Dangerous levels begin at 400mg of Caffeine
- Caffeine affects the subject's mood and can lead to withdrawals.
- A large amount of Caffeine can lead to insomnia, anxiety, irritability, stomach upset, fast heartbeat, and muscle tremors.
- A study found that people who drank six or more cups of coffee per day decreased their chances of contracting diabetes by 30-54 percent.
- Drinking coffee has been shown to lower chances of contracting diseases like Alzheimer's, colon cancer and others.

Economic

- Average commodity market price for 1 lb. of Arabica is \$1.53
 - Each pound can be worth up to \$175 to coffee retailer, depending on its use
 - **There is \$173.37 disparity between wage of farmer and actual worth of coffee**
- \$1.53/pound must be paid for
 - Labor, fertilizer, inspections, transportation, and membership fees
 - Remaining income used to pay personal expenses and living costs for farmers and their family

Figure 3. Fairtrade minimum prices versus conventional market prices for Arabica, 1949-2010

- Coffee prices are not set by the farmers but determined by middlemen
 - Farmers have little to no protection in the variability in the market
- Fair Trade
 - Goal is to alleviate poverty by paying fair wages to farmers

Figure 4. Sustainable coffee of global coffee production, 2009. Shadow graph displays individual certifications

Conclusion

Conventional coffee is unsustainable due to the immense popularity of sun-grown coffee, the consumption of caffeine which can lead to mild or severe withdrawal effects, and economically not equitable for farmers, since they can't determine the prices. Coffee has a significant impact on social lives, the global economy and our environment, therefore having a sustainable system is essential. Sustainable solutions can be made through production methods such as shade grown coffee, a fair economic system that connects farmers and retailers, and moderation in consumption.

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