



permitting the mushrooms to digest fibers. Thus farming mushrooms on coffee is 80 percent more energy efficient than a stand-alone energy intensive process preparing substrates can be clustered with free energy needed to prepare coffee.

Quality tropical mushrooms are farmed on hardwoods like oak. Hardwood trees are harvested, ground and converted into artificial logs. It takes up to 9 months to fruit *shiitake* or *ganoderma*. Prunings, husks, pulp and grounds are by-products from coffee, also a hardwood enriched with caffeine. While cows or pigs get stressed out by caffeine, this biochemical stimulates mycelium to the point that mushrooms pop out already 3 months after seeding. This generates a better cash flow and offers a competitive alternative to the traditional techniques.

The third innovation is that the left-overs after harvesting mushrooms are enriched with essential amino acids, including lysine, a highly prized enzyme traditionally derived from sugar beets. Thus a by-product without value is converted into a quality animal feed for cattle on the farm or pets at home. Professor Ivanka Milenkovic, (University of Belgrade, Serbia published by Elsevier Science) provided scientific proof that underpins the financial logic of cascading nutrients and energy from agricultural waste to fungi and then to animal food.

### **The First Cash Flow**

Carmenza Jaramillo, the Latino entrepreneur and Ivanka Milenkovic demonstrated this business model by creating their own commercial mushroom farms. The strategy of taking coffee waste and convert methane producing biomass into revenue generating fungi proved to be a viable model. After more than a decade tropical mushrooms created new markets from Colombia to Serbia. It is no surprise that in 2009 over 100 companies emulated this business model in the Colombian coffee region El Huila. Anyone with access to biomass rich in either caffeine or hardwood fibers, or both, now has the opportunity to start seeding mushrooms competitively. This generates jobs, provides food security and creates revenues while eliminating the need for increased hardwood trees and eliminating the need for increased logging due to rising demand from vegetarians and gourmets alike.

The second opportunity to generate a first cash flow is the creation of a business whereby cafés and restaurants that today pay to dispose of coffee waste, could pay a symbolic fee to entrepreneurs who convert this waste to farm delicious mushrooms for sale to the local restaurants. The real opportunity is the design of a business model based on the “branding of waste”. Indeed, the brand “waste” has always been negative, and no company would like to associate its name with a specific waste stream that causes harm or is perceived as a nuisance. This is different now.

### **The Opportunity**

Waste is not wasted. Waste generates quality food at lower cost, eliminating transportation, offering fresh produce locally, while reducing the load on the landfill. Cafes and restaurants may be delighted to have their image extended to the quality of

the mushrooms farmed on their waste while generating jobs. If fair trade and organically grown coffees like Max Havelaar were the base material, imagine the added value that could be generated for all partners on the farms or in the coffee shops. The entrepreneur enjoys a low barrier to entry since inner-city restaurants and cafes pay for disposing of the raw materials and pay to put these delicacies on their menu as is done by La Place in the Netherlands thanks to the initiative of Jan-Willem Bosman Jansen of the start-up company GRO.

The California-based coffee wholesaler Equator headed by Helen Russell takes this to the next level. Helen and her team created a special mixture of beans named Chido's Blend, named after Chido Govero, the young Zimbabwean orphan who trains women around coffee farms to produce mushrooms on coffee waste, providing food security and jobs. This reduces abuse and helps contain the spread of AIDS. Chido is using the funds to train orphans food security and when they have their food, then abuse is not tolerated. The business model is designed to contribute to the personal and professional development of the unreached in Africa.

At the same time Equator clients like Peet's Coffee offers their waste in the San Francisco Bay Area to BTTR Ventures, the start-up company created by Nikhil Arora and Alex Velez, two Berkeley University Haas School of Business graduates. Nikhil and Alex were the first ones in the United States to put a brand on mushrooms farmed on coffee waste. It is not a surprise that they were selected by Newsweek as one of the 25 entrepreneurs of the year under 25 in 2009. They went on to become the runner-up in the BBC World Challenge the next year. Helen Russell now generates more business for herself, more cash for Chido, and facilitates growth for Nikhil and Alex while coffee waste gets a brand which command an additional revenue stream.

This new business model proliferates from Amsterdam, Paris, Seoul, Mexico, Sydney and Berlin with an estimated 15 inner-city initiatives unfolding worldwide in 2012. The farm projects have expanded from Latin America to Africa and Asia, with Chido Govero committed to make a difference. Now if this works with coffee, then we can expand to other agricultural wastes like tea in Kenya and India, apple orchards in South Africa or Chile where companies struggle to compete in this globalized market focusing on cutting costs and labor productivity only. The scanning and screening of the Blue Economy team identified in South Africa no less than eight additional cash flows, while having the chance to double the number of jobs. All these projects and initiatives have one point in common: the need for entrepreneurs to take up the challenge to use and give value to what is locally available.

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"Blue Economy: 100 Innovations - 10 years - 100 million jobs" published in 35 languages worldwide.

For further background on the 100 cases: [www.TheBlueEconomy.org](http://www.TheBlueEconomy.org)