Sustainability indicators along the coffee value chain: A comparative study between Mexican & Colombian retail

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Abstract

There's no consensus on sustainability indicators measuring companies' performance along the value chain, nor measurement of consumers' influence on supply chain's configuration, aiming to improve such indicators. A framework to obtain sustainability indicators along the coffee value chain based on a comparative study between Mexican and Colombian retailers is described.

Keywords: Sustainability, Costumer, Indicators

Introduction

Although there is a big boom related to the sustainability of companies, there is no unique way for measuring and assessing the diverse and complex direct and indirect impacts that a supply chain has on the environment and on communities where it operates. Each particular industry, sector and/or country has its own particularities that should be considered and analyzed when a sustainability assessment is done. There is no generally agreed set of indicators and methodologies that can be widely applied to any supply chain. Nonetheless, there are general laws and relationships that can be inferred from certain cases that may give a relevant contribution to the development of a more global framework for sustainability in supply chains.

One of the main dynamics that are of relevance to the way companies decide on the way things are being done is the costumer-corporation relationship. Costumer power and product choice are key elements that should be taken into account in today's corporate social and environmental responsibility agendas. Although there is a current understanding by companies about the way costumers have a growing conscience and may be influenced on their product's choices by the way things are done on a company, there is yet no clear relationship on which subjects are of most relevance for a particular consumer regarding a particular industry or product.

The purpose of this paper is to analyze a process and framework of how a supply chain can be assessed on its sustainability performance and the way costumers and their preferences are linked with the value chain (and potentially affect it). First, the context and relevance of the coffee industry with regard to the two countries in study and to the sustainability issue will be presented. The literature review will follow, as to continue with the research methodology. Finally, some preliminary results will be presented, followed by the discussions and conclusions relevant to the study.

Coffee context

Coffee is the second most heavily traded commodity after petroleum (Mackenzie 2004). Production of coffee takes place in smallholder farms in more than 50 developing countries, with more than 20 million families depending on the crop. (Alvarez et al. 2010)

According to Rueda and Lamblin (2012), there has currently been a phenomenon of increasing high-quality and sustainable - certified coffee demand of this commodity. World coffee consumption from 2004 to 2010 grew about 2% each year; in this same period, sustainable coffees' consumption has grown about 60% annually. (FNC 2010)

All this happens in a context of coffee oversupply (25 million producers and 80 countries) due to: introduction of coffee growing in Vietnam (1990), greater production of coffee in Brazil, growing consumer demand for higher quality beans and breakdown of quota system in International Coffee Organization in 1989. (Mackenzie 2004) This makes vital the differentiation of coffee in the market.

Furthermore, 82% of Mexicans prefer buying products from socially responsible companies and 55% are willing to pay an extra amount of money for these products; in Latin America these percentages are 77% and 49%, respectively (Nielsen 2012). Coffee companies are in an oversupplied market with more socially and environmentally preoccupied costumers.

In addition to this, Mexicans have increased their coffee consumption (35% increase from 2005 to 2010) and the foodservice channel presents the biggest growth rates in the country (historical and forecast) (Euromonitor 2012). Mexican café/bars and coffee retail markets are the second biggest in Latin America (Euromonitor 2011). Colombia has a Café/Bar market growth rate of almost 100% from 2006 – 2011 (Ibid.).

The study will focus in Colombia and Mexico because there is an opportunity for analyzing good practices in between the two countries and because of their particular characteristics. The former has experience in handling and management of high quality coffees and a particular organism for this purpose (Federación Nacional de Cafeteros – FNC); there are learning opportunities about the Colombian case (they are # 2 arabica beans producer and # 3 of total coffee production in the world; Mexico is # 7 and 10 respectively). (Doom 2011) In addition to the growing socially concerned customers in Mexico, the country is the # 13 consumer market in the world, while Colombia is #34. (United Nations 2009)

Finally, the focus is on the coffee retailer because of the importance and power held by them on these value chains. Stakeholders hold lead company as responsible of adverse impacts of all organizations in SC. (Rao and Holt 2005) Also, these companies hold the biggest part of the value added to coffee before it gets to the final consumer (Rueda and Lamblin 2012).

Literature review

In this section of the paper, the literature consulted for the construction of the research methodology will be presented.

Sustainability indicators must have all three sustainability dimensions included (social, environmental, and economic). The triple bottom line (TBL) is an accountability framework for organizations to include social and environmental dimensions, besides the economic one. (Slaper and Hall 2011) Goel (2010) mentions the relevance of the interdependence between the three dimensions (also known as the triple P – people, profit, planet) and characterizes the TBL with respect to: accepting accountability, transparency, planning and operations integration, commitment to stakeholder engagement, and multi-dimensional report and measurement.

For Slaper and Hall (2011) there are measurements for each dimension, depending on the level of the organization, the type of project(s), and the geographical scope. The authors mention that for local cases, it is better to use proper indicators for each particular case.

For implementing the triple bottom line, sustainable supply chain management is a sustainability framework applied to the supply and value chain; this concept involves the intersection of environmental, social and economic performance. The activities involved here are those that improve the three performances simultaneously, not including those initiatives that improve only social or environmental performance and hope to help or at least not damage the economic one (Carter and Easton 2011). When not including this three dimensions on a supply chain assessment (a traditional supply chain), a company risks getting some of the inconveniences associated with conventional supply chains, such as: (1) ignoring environmental and social impacts due to a focus on monetary benefits, (2) imposing internal benefits over society benefits, and (3) vulnerability to green trade policies and barriers (Lee and Chen 2010). There will always be the necessity of a driver for taking a decision and changing the typical way of managing operations. Mann et al. (2010) found two types of drivers for a sustainable management of the supply chain: external drivers (environmental, legal, and social – primary and secondary stakeholders) and internal drivers (financial, internal business process, costumer and social – primary stakeholders).

Most of the research done in environmental initiatives of a supply chain has focused on one functional area (Sarkis 1999). According to Rao and Holt (2005) there is a need to focus this type of research on the totality of the supply chain. One of the most used tools for the complete analysis and study of a supply chain is Value Stream Mapping (VSM). VSM is a key tool for measuring true value of a product and it additionally helps in the continuing improvement of the chain in a competent and sustainable way. (Lovelle 2001) In addition to this, VSM is a tool that combines material processing steps with information flow. (Manos 2006)

Prabhu et al. (2008) and Chen & Meng (2010) distinguish three types of process activities that can be found when doing a VSM: added value, prerequisites (or support – necessary but not giving an added value), and wastes (no added value). VSM is used to identify and eliminate wastes or processes that don't add value to the final product or service; this value is measured wherever there's a conversion towards what is needed by the costumer; any other process is seen as "muda" (futility, idleness, uselessness, etc. in the Japanese context, first used by Toyota) (Manos 2006). Lovelle (2001) identifies 7 typical elements that won't add value to a value chain: overproduction, inventory, transportation, waiting, motion, over-processing, and correction (re-work). This methodology can be used to construct a present and future VSM (Chen and Meng 2010). Furthermore, it can be applied at different levels of an organization: extended level map (multiple plants, customers or suppliers), facility level map (one plant), and process level map (departmental or interdepartmental) (Manos 2006).

For this work, the VSM will be applied starting near the end customer (retail point) and working back upstream toward the raw materials (coffee production), as Jones & Womack (2009) suggest to be the most desirable. Too many details in an extended map can interfere with clear thinking about how to improve the value stream (Ibid.), thus the maps will be kept as simple as possible.

Once the main processes of the value chain are mapped, indicators must be associated to each segment, for all three sustainability dimensions (TBL). The indicators selection has been done based on the United Nations Millennium Development Goals (UNMDG) found on United Nations (2010) and then on the most common and critical indicators proposed by the Global Reporting Initiative, the Rainforest Alliance, UTZ Certified, and the 4C Association, which are also aligned with the UNMDG goals and targets.

Goal number 7 from the UNMDG (ensure environmental sustainability) focuses on ensuring environmental sustainability. Within its targets and sub-targets, the ones applicable to supply chains, which are also aligned with the other certifications mentioned before are related to reversing loss of environmental resources, reduction in biodiversity loss (CO2 emissions, total water resources used, terrestrial and marine areas protected) and access to sanitation.

The GRI Indicator Protocols Set Environment version 3.1 (all indicators and information given for the GRI indicators will be taken from Global Reporting Initiave (2011)) divides the different environmental indicators into key aspects such as materials, energy, water, among others, reflecting the inputs, outputs, and modes of impact a given organization has on the environment. The suggested indicators by GRI, aligned with the UN Millennium Development Goals mentioned above and categorized as core indicators, are (with their respective GRI code): direct and indirect energy consumption by source (EN3 and EN4) (environmental and carbon footprint are shaped in part by this, e.g. using fossil fuels is a major source of greenhouse gas emissions), total water withdrawal by source (EN8), location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas (EN11), total direct and indirect greenhouse gas emissions by weight (EN16 and EN17), emissions of ozone-depleting substances by weight (EN19), and total water discharge by quality and destination (EN21).

Similar to the way some GRI social indicators are relevant to specific stakeholders, the Rainforest Alliance and the Sustainable Agriculture Network (SAN) have built a rigorous list of social and environmental indicators and standards that must be met by the producers that want to have a Rainforest Alliance Certified farm. (Rainforest Alliance and Sustainable Agriculture Network 2010) Moreover, they require additional criteria and indicators for coffee production. (Rainforest Alliance and Sustainable Agriculture Network 2005) Among the different principles and indicators suggested by these organisms, the critical criterion, aligned with the UNMDG are: restoration and reforestation of all natural ecosystems, zero destruction rate of natural ecosystems, location and potential negative effects of productive areas over relevant biological areas, wild animals protection, proper usage of fertilizers based on soil characteristics, wastes treatment for reducing environmental and human health impacts, rational use of water resources, discharging and depositing of industrial or domestic wastewater and organic or inorganic solids.

UTZ certified gives recognition to farmers with better farming methods, better working conditions, better care for nature, and better care for next generations contributing to get a better crop, better income, better environment, and in general a better life for coffee producers (UTZ 2012). The keys aspects mentioned by this organization, which also are part of the UN Millennium Development Goals are: efficient us of water, land and fertilizers, respect for protected areas, plant and animal life and water resources, preventing deforestation and planting shade trees, optimization and reduction of artificial fertilizers and pesticides usage, efficient waste collection, processing and recycling, and careful use of energy and promotion of usage of sustainable energy sources.

The 4C Association (Common Code for the Coffee Community) works with 10 unacceptable practices and 4C Code Matrix, meant to promote more sustainable practices in the mainstream coffee chain and thus increase the amount of coffee meeting basic sustainability criteria. (4C Association 2012) According to the association, the scope of their code of conduct covers the three dimensions of sustainability, based on the UNMDG. The environmental categories found on the 4C Code Matrix aligned with these goals and targets are: conservation of biodiversity, use and handling of chemicals, soil conservation, water conservation and management, wastewater management, and energy savings and renewable sources usage.

Social themes can be found on different Millennium Development Goals (Goal 1: eradicate extreme poverty and hunger, Goal 3: promote gender equality and empower women). For the current interest of the research, the ones directly related and relevant are targets of full and productive employment and decent work for all (growth rate of GDP per person employed, employment-to-population ratio, proportion of employed people living below US$1 per day) and the share of women in wage employment in the non-agricultural sector.

For the social impacts evaluation of a company, the GRI divides its protocols into: Human rights, Labor, product responsibility, and society. The first three are associated with specific stakeholders groups. The society group of indicators is related to the interactions between the organization and market structures and social institutions within which stakeholders groups interact, focusing on impacts on the communities in which organizations operate. Among the common indicators that can be found among the Global Reporting Initiative, the Rainforest Alliance, UTZ Certified, and the 4C Association, which are aligned with the UNMDG are: freedom of association and of bargaining, gender non-discrimination, wages and working hours compliance.

Although there are no direct economic goals in the UNMDG, most of the targets and plans imply an economic development and financial resources in order to be properly implemented. Economic indicators in the GRI are treated via aspects aggrupation (as with social indicators) and their relevance is related to the flow of capital amongst different stakeholders and the key economic impacts of the organization throughout society. This last societal economic impact is aligned with the implications on the UNMDG mentioned before and are included in all Rainforest Alliance, UTZ Certified, and the 4C Association certifications as fair pricing policies, local economic development, and better income for coffee producers. GRI mentions this as proportion of spending on local suppliers. The VSM methodology also suggests some profit indicators that are relevant to the company and costumer.

Some of these aspects and indicators, associated with each dimension of the triple bottom line and for every segment of the SC, are summarized in table 1. Besides the alignment between UNMDG, GRI, Rainforest Alliance, UTZ Certified, and the 4C Association, the indicators have been chosen based on the most used, most critical and available ones, from between the different frameworks mentioned before.

Table 1: Selected sustainability indicators

Economic	Environmental	Social
• Economic performance (revenues, operating costs, inventories) • Lead time + process time • Productivity % (coffee produced per worker) • Spending on local suppliers + Investment on local infrastructure	• Carbon footprint • Water usage • Water and solid discharges • Energy consumption	• Freedom of association & bargaining • Working hours compliance • Wages compliance • Labor equity / non-discrimination

Source: Author's construction with UN Millennium Development Goals, GRI, Rainforest Alliance, UTZ, 4C Association, and VSM indicators and main performance measurement concepts

Once the mapping of the supply chain has been done, with the sustainability indicators assessment, a new supply chain configuration proposal might be in place. Srai and Gregory (2008) mention a link between network configuration, and capacity and

performance. Fisher (1997) says that a company can configure its supply chain looking for more efficiency and response capacity, but it's not clear how configuration can impact on environmental and/or social performance of a firm (Parmigiani et al. 2011). When linking supply chain configuration and environmental performance, Elhedhli and Merrick (2012) mention how the consideration of carbon emissions costs can change the optimal configuration of a supply chain. It's possible that after evaluating this indicators and having the current map of the supply chain, a future or potential map will be considered for improving selected sustainability indicators performance. The reconfiguration of a supply network refers to an alternate permutation of the current state, which allows improvements in the provisioning or development of a product or service (Srai and Gregory 2008). In the coffee project, the reconfiguration of the supply chain will be worked in order to seek an improvement of the value offered as well as improvements in the environmental and social performances of the process, while guaranteeing a positive financial performance.

Finally, costumer influence on what a company might do, (consumers power as a driver) can be considered. Currently, the easy and free access that consumers have to different sources of information, gives them an augmented voice at an individual and community level, changing markets and redefining the nature of the relationship between corporations and costumers (Umit and Krishnamurthy 2007). Internet plays an important and central role in this, both by giving more availability of information and by facilitating the nonconformity complaints to be expressed and consulted by the general public. Carroll (2012) mentions how social media can be used as an amplified voice and this can have consequences in a corporation's image, stock price, costs in corrective processes, etc.

Each particular niche of costumers should be evaluated as to what opinions and preferences they have regarding the sustainability of their products. Marques (2012) talks about Schwartz theory, which organizes different motivational values into 4 different groups: openness to change, self-transcendence, conservation, and self-enhancement. According to preferences and where a consumer's personality is located, he will have more or less preferences for a specific organic, sustainable or other types of products.

Summing up, the framework of this work will be based on intersecting relationships of the different concepts described before. The process of changing from the current map and configuration of the supply chain to the potential and recommended configuration will be evaluated through the filters of the three dimensions of sustainability (or TBL), people, profit, and planet. Figure 1 shows these concepts and relationships. All this process will be evaluated under a framework of sustainable supply chain management. Besides these three filters, another filter (and also driver), the costumer, will be applied as the preferences and opinions shown by costumers who will be surveyed might have influence on the way the company is providing their coffee. Each different element analyzed should be prioritized and evaluated in order to seek which changes and reconfigurations are the first to be done and which changes can be in conflict with others and which (if any) to select.

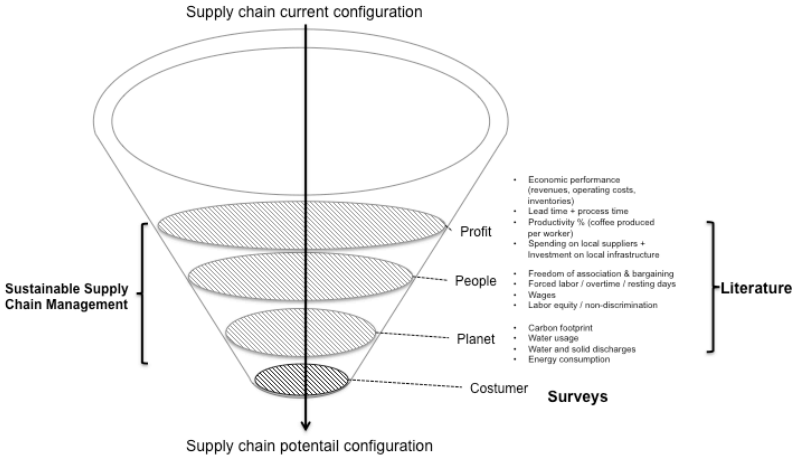

Figure 1: Framework logic

Source: Author's construction

Research methodology

Each different supply chain segment must be mapped and described with relationships between the players. In this way, the whole supply chain will be visualized and assessed, avoiding the analysis of just one particular segment. Once the supply chain has been mapped, an association of the sustainability indicators to each segment and to the general supply chain must be done. Different measurements will be taken in order to have a big or small sample for each of the segments on the supply chain, depending on the case to be studied (i.e. local, regional, national or other level of studies). Figure 2 illustrates an example of a generic supply chain, with the associated sustainability indicators to be measured for each segment and for the totality of the supply chain. As proposed for by the VSM methodology, the information flow should be mapped; for the case of sustainability assessment this can be critical in associating different performance measures not only with a particular supply chain segment, but with associated orders and requests by different players.

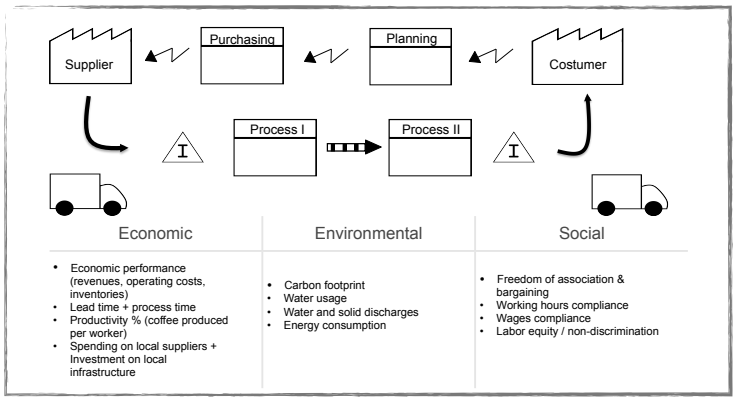

Figure 2: Framework logic

Source: Author's construction

Once this process is done, the different data retrieved from the fieldwork done on different parts and segments of the supply chain will be analyzed using non-parametric statistics.

When a research wants to be generalized to a broader population, based on data retrieved from a specific population, there must be randomness in the sample taken: consecutive observations must be independent. (Siegel, 1995) These properties can be evaluated via a random series sample test. Such method, suggested by Siegel (1995), can be

done on small or big samples. In a series of data, *m* will be the number of elements from one class and *n* the number of elements from other class (e.g. heads and tails on a coin toss or positive and negative responses on a questionnaire) on a sequence of N = *m* + *n* binary events and *r* number of series (number of different series of consecutive samples having the same signs). If the probability *p* of a value such as *r,* according to H_0, is the same or less than $\propto$, H_0 is rejected.

Now that the randomness of the samples has been tested, a sign test can be used in case a comparative study between two cases (e.g two countries, two states, two companies) will be included. This will help to determine whether one or the other has a better sustainability performance (both for each segment and for the complete value chain). Even if the comparison is not done, this methodology will also be used for a comparison with costumers' preferences, which will be explained later. A sing test is useful for determining whether a random variable in a pair (X, Y) tends to be larger than the other variable in the pair and for testing for trends in a series of ordinal measurements or as a test of correlation. (Conover, 1999) The data for the sign test consists of n observations on a bivariate random sample, from (X_1, Y_1) to (X_n, Y_n). (This data comes from the indicators performance collected for each segment and supply chain, if a comparison of cases is done, or from the indicators and costumers perceptions, which will be mentioned later.) Within each pair a comparison is made in such a way that if $X_i < Y_i$, the pair is classified as "+", "-" if $X_i > Y_i$ and "0" if both are equal; so the measurement scale must be ordinal. (Ibid.) Conover (1999) also mentions the assumptions that must be applied in this test sign cases:

1. The bivariate random variables (X_i, Y_i) $i = 1,2 \ldots n$ are mutually independent
2. The measurement scale is ordinal within each pair.
3. All pairs are internally consistent.

Finally, for the construction of costumers' data, a survey will be done. Costumers from each particular retail/foodservice establishment will be consulted about their preferences and opinions regarding each of the sustainability indicators with regards to the coffee they consume in these establishments. This will be paired with each supply chain segment, and analyzed via sign test analysis as to compare where can the biggest differences with respect with what costumers reveal is the most important sustainability factors for the production of their coffee cup.

Discussions

A supply chain applying this concepts on its operations must have a complete commitment from the different stakeholders involved in each part of the supply chain as different information vital to the evaluation, control and progress must be collected an evaluated thoroughly across the different value chain phases. It is a good idea to include all relevant managers and workers in the early and introductory stages of the value stream mapping for them to be informed about the overall objective and the important role each area play; also, since there is everyday work to be done and in general no time for extra projects, there should be a leader assigned for each supply chain segment in order to secure progress.

As mentioned before, there should be a priority in the changes to be made since in real life supply chains the application of all changes and reconfigurations is probably impossible to do. The politic, technic, and economic feasibility to do the aforementioned supply chain re-configuration must be considered and taken into account when analyzing an organization. A company has a series of resources and contextual limitations and advantages that can be seen as input that defines the possibility of applying certain changes on the way they're currently doing things (based on the filters from figure 1). This pool of variables can be bigger or smaller depending on the particular case study and can be assessed and fostered for a more feasible scenario.

The current analysis in Colombia and Mexico is in progress with the aforementioned framework and recommendations. Results so far have shown interesting possibilities of potential markets creation (since neither in Mexico or Colombia there is an offer of sustainable coffees in foodservice or coffee bars). These coffee retailers will certainly have to further enquire in the possibility of offering a socially and environmentally responsible product, with particular characteristics (as certain sustainability initiatives driven by costumers opinions about what is more important) that might appeal to their clients.

Finally, if the gathering of indicators is not possible by direct or indirect means, for a considerable amount of supply chain stakeholders, there can be an operationalization of these indicators by using interviews and questionnaires for each segment of the supply, gathering different random samples for each. What should be measured here is both the perceived relevance of each indicator for the business of each particular player and its estimated performance.

Conclusions

This framework restricts the number of indicators and thus the complexity of assessing the sustainability performance of a supply chain, based on a cascade logic, coming from the UNMDG, passing through the corporate GRI indicators and finishing with the particular coffee sector certifications such as Rainforest Alliance, UTZ Certified, and 4C Association. Furthermore, it considers the complete supply chain and the relations in between players and not a specific segment of the whole process. While it can be used for a single supply chain analysis, with the usage of non-parametric statistics, there's an added value to do a comparative analysis of different supply chains. On the other hand, the costumer's opinions' analysis and comparison with the real indicators and job done by the supply chains, gives a first approach to correlate consumer's attitudes on their consumption impacts and companies production policies with companies actual performance and working practices. Furthermore, these analyses can be used for potential new market niches understanding, where there is no offer of sustainable and certified coffees on foodservices establishments.

References

4C Association. (2012). The 4C Code of Conduct.

Alvarez, G., Pilbeam, C., & Wilding, R. (2010). Nestlé Nespresso AAA sustainable quality program: an investigation into the governance dynamics in a multi-stakeholder supply chain network. *Supply Chain Management: An International Journal*, 15(2), 165–182.

Carroll, D. (2012). How social media made us all statistically significant.*Venture Beat*. Available at: http://venturebeat.com/2012/09/29/social-media-customer-service-statistics/ (accessed November 13, 2012)

Carter, C. R., & Easton, P. L. (2011). Sustainable supply chain management: evolution and future directions. *International Journal of Physical Distribution & Logistics Management*, 41(1), 46–62.

Chen, L., & Meng, B. (2010). The Application of Value Stream Mapping Based Lean Production System. *International Journal of Business and Management*, 5(6), 203–210.

Conover, W. J. (1999). *Practical Nonparametric Statistics*. New York, NY: John Wiley & Sons, Inc.

Doom, J. (2011). World's Top 10 Coffee-Producing Countries in 2010-2011. *Bloomberg*., Available at: http://www.bloomberg.com/news/2011-08-19/world-s-top-10-coffee-producing-countries-in-2010-2011-table-.html (accessed September 28, 2012)

Elhedhli, S., & Merrick, R. (2012). Green supply chain network design to reduce carbon emissions. *Transportation Research Part D: Transport and Environment*, 17(5), 370–379.

Euromonitor International. (2011). *Passport GMID*. Available at: http://www.portal.euromonitor.com/portal/default.aspx (accessed December 18, 2012)

Euromonitor International. (2012). Análisis del Mercado Nacional y Regional del Café en México.

Fisher, M. L. (1997). What is the Right Supply Chain for Your Product? *Harvard Business Review*, 105 – 116.

FNC. (2010). Memorias del Seminario Internacional del sobre Café Sostenible. Seminario Internacional del sobre Café Sostenible.

Global Reporting Initiative. (2011). Indicator Protocols Set Version 3.1.

Goel, P. (2010). Triple Bottom Line Reporting: An Analytical Approach for Corporate Sustainability. *Journal of Finance*, 1(July), 27–42.
Jones, D., & Womack, J. (2009). *Seeing the Whole*. Cambridge, MA: Lean Enterprise Institute.
Lee, C., & Chen, S. (2010). Selecting the Most Feasible Strategy for Green Supply-Chain Management. *The Business Review*, Cambridge, 14(2), 141–147.
Lovelle, J. (2001). Mapping the value stream. *IIE Solutions*, 33, 26–33.
Mackenzie, C. (2004). Bitter harvest. *Canadian Business*, 77(10), 43–46.
Mann, H., Kumar, U., Kumar, V., Jit, I., & Mann, S. (2010). Drivers of Sustainable Supply Chain Management. *IUP Journal of Operations Management*, IX(4), 52–64.
Manos, T. (2006). Value Stream Mapping-an Introduction. *Quality Progress*, 39(June).
Marques, L. (2012). An analysis of value in an organic food supply chain. Working paper to be published in British Food Journal.
Nielsen. (2012). Nielsen identifica al consumidor socialmente responsable. *Nielsen.com*. Available at: http://www.nielsen.com/mexico/es/news-insights/press-room/2012/nielsen-identifica-al-consumidor-socialmente-responsable.html (accessed September 28, 2012)
Parmigiani, A., Klassen, R. D., & Russo, M. V. (2011). Efficiency meets accountability: Performance implications of supply chain configuration, control, and capabilities. *Journal of Operations Management*, 29(3), 212–223.
Prabhu, B. V., Ramesh, D., Surekha, A., Holla, A., & Patel, K. M. (2008). Case Study Value Stream Mapping of Truck Operations : A Case Study. *South Asian Journal of Management*, 15(2), 107–115.
Rainforest Alliance, & Sustainable Agriculture Network. (2005). Additional Criteria and Indicators for Coffee Production.
Rainforest Alliance, & Sustainable Agriculture Network. (2010). Sustainable Agriculture Standard (Vol. 2010).
Rao, P., & Holt, D. (2005). Do green supply chains lead to competitiveness and economic performance? *International Journal of Operations & Production Management*, 25(9), 898–916.
Rueda, X., & Lambin, E. F. (2012). Linking Globalization to Local Land Uses: How Eco-consumers and Gourmands are Changing the Colombian Coffee Landscapes. *World Development*, xx(x).
Sarkis, J. (1999). How Green is the Supply Chain? : Practice and Research (pp. 1–40). Graduate School of Management, Clark University.
Worcester, MA. Siegel, S. (1995). *Estadística no paramétrica aplicada a las ciencias de la conducta* (4a ed.). Mexico: Trillas.
Slaper, T., & Hall, T. (2011). The Triple Bottom Line : What Is It and How Does it Work? *Indiana Business Review*, 4–9.
Srai, J. S., & Gregory, M. (2008). A supply network configuration perspective on international supply chain development. *International Journal of Operations & Production Management*, 28(5), 386–411.
Umit Kucuk, S., & Krishnamurthy, S. (2007). An analysis of consumer power on the Internet. *Technovation*, 27(1-2), 47–56.
United Nations. (2010). United Nations Millenium Development Goals. Available at: http://www.un.org/millenniumgoals/ (accessed November 14, 2012)
United Nations Statistics Division. (2009). UN National Accounts Main Aggregates Database.
UTZ. (2012). *UTZ Certified*. Available at: http://www.utzcertified.org/ (accessed November 30, 2012)