Managing environmental sustainability through various activities of companies within food industry: A case study of Nespresso and Starbucks

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Summary

The purpose of this master thesis is to analyze the ability of selected food companies to manage effectively their environmental sustainability efforts and activities. The focus on the companies within food industry was chosen because of the large impact which consumed food has on both human welfare and the planet's environment. This thesis is composed of six chapters, each of them dealing with different aspects of selected topic. Chapter one provides a brief look at philosophy of science as it explains the terminology related to paradigms and its classification. Apart from that, this chapter also presents the selected approaches and methods. The case study method with exploratory purpose was adopted as method for this work as it is considered to be one of a preferred method for a research dealing with questions "how" and "why" (Kuada, 2010). In relation to the international business area two large multinational companies operating within food industry – Nestlé Nespresso SA and Starbucks Corporation – were selected for the case study. Besides that, this work is based on both primary and secondary data collection while primary data were gathered from websites of selected companies and their documents available online. Whereas for the secondary data collection, mainly academic journal articles related to environmental sustainability and studies conducted with food companies were searched through various online databases such as Scopus, Springer and Google scholar.

Chapter two is introductory as it outlines the concept of sustainability and sustainable development together with the value chain concept and its relation to sustainability. Chapter three contains a review of academic literature and it is subdivided into two subchapters. The first one is dealing with different approaches and practices to applying environmental sustainability and the second one contains a review on articles which used life cycle analysis as a methodology for conducting studies within food industry. In Chapter four, the empirical research using the case study of Nespresso and Starbucks is done. This part of the work consists of four subchapters. First the brief overview of both companies is presented, then in the next subchapter focus shifts to sustainability programmes and initiatives of the selected companies. In this subchapter companies goals and achievements are presented as well. In the last part of empirical research, the importance of coffee certifications is stressed as they are implying both environmental and social sustainability standards for coffee producers and suppliers. Chapter five is more analytical as it provides the discussion over the data gathered

in the empirical research. Conclusions and limitations of this work together with the suggestions for the future research are drawn in Chapter six. This chapter tries to reflect on findings from both theoretical and empirical parts of this work. In this work the main aim is to find out how food companies can effectively manage environmental sustainability through the activities across the value chain. Apart from that, this work is also focused on the effects of the environmental sustainability activities of food firms on local communities on different value chain levels. It was concluded that from the findings presented in empirical part that both Nespresso and Starbucks manage effectively environmental sustainability through their activities. Besides that, it was found out that both selected companies positively affect the livelihoods of coffee farmers and suppliers by their environmental sustainability activities. For the future research, it was suggested to conduct a study with selecting more companies ideally within different food sectors in order to compare their both environmental and social sustainability activities.

Introduction

One of the biggest problems of today's world is the growing population of mankind together with rising consumption. This causes the pressure on firms which are forced to use more and more of our planet's limited resources (Schröder, Holbach and Müller-Kirschbaum, 2015). Moreover, nowadays the business is oriented only one way – to make perpetual growth, thus constantly generate higher profits. However, many studies have already proved that the way how companies develop their businesses is not sustainable in the long run (Porter and Kramer, 2011; D'heur, 2015). Humanity has already done some significant and irreversible damages to our planet's ecosystem. It is especially noticeable in deterioration of air and water quality together with decrease of water sources, as well as degradation of land and biodiversity decline (Goodland, 1995; Moldan, Janouskova and Hak, 2011). Therefore it is crucial for mankind to reduce waste and pollution, learn how to manage the renewable resources and use especially new alternative sources of energy efficiently as well as to invest in repairing the already made damages (Goodland and Daly, 1996). That is why the topic of sustainability and sustainable development is more crucial in these days than ever. Sustainability is usually referred as containing three interconnected pillars – social, economic and environmental (Moldan, Janouskova and Hak, 2011). Some authors refer to it with term "triple bottom line" (Porter and Kramer, 2006; Schröder, Holbach and Müller-Kirschbaum, 2015; D'heur, 2015; Hart, Milstein and Caggiano, 2003). According to authors Moldan, Janouskova and Hak (2011, p. 6) "sustainable development used to be more or less understood as social and economic development that should be environmentally sustainable."

Although sustainability and sustainable development belong to constantly discussed topics inside companies, most managers still views sustainability as a liability which involves regulations and carries additional costs, not seeing the benefits which sustainability could bring them (Hart, Milstein and Caggiano, 2003). However, nowadays it is already known that new technologies supporting better resource utilization and process efficiency can even lead to cost savings (Porter and Kramer, 2011; D'heur, 2015). Apart from that, more and more firms have also started to realize the importance of social element of sustainability, because social problems carry both constraints for their operations and lack opportunities for their growth (Pfitzer, Bockstette and Stamp, 2013). Porter and Kramer (2006, p. 83) argue that: "Successful corporations need a healthy society. Education, health care, and equal opportunity are essential to a productive workforce. Safe products and working conditions

not only attract customers but lower the internal costs of accidents. Efficient utilization of land, water, energy, and other natural resources makes business more productive."

Problem formulation

In this work, in the centre of the interest will be environmental sustainability, because it is needed by humans as it is directly linked to human well-being (Goodland, 1995; Moldan, Janouskova and Hak, 2011). Goodland (1995, p. 3) views environmental sustainability as seeking to "improve human welfare by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans." Nowadays some firms truly care about both social and environmental impact of their businesses. Kramer for *The Nestlé concept of corporate social responsibility as implemented in Latin America* (2006) writes that companies know that their businesses can create both positive and negative social and environmental impact through the daily operations of their value chain. Thus a lot of firms tries to minimize their environmental footprint by for instance lowering their emissions, using the alternative energy sources such as wind or solar power plants or coming up with new ways of recycling or reusing of their products (Porter and Kramer, 2011). As authors Moldan, Janouskova and Hak (2011, pp. 7-8) pointed out "the ecosystem and nature's services are jointly linked to human well-being because it depends on them. To secure well-being, it is essential to maintain the ecosystem and nature's services at an appropriate standard."

But how can firms manage effectively their environmental sustainability efforts? And how can they do that through value chain activities? And with which obstacles do they have to deal? As it was already stated, the environmental sustainability is connected to people and their well-being, it is also important to ask following questions: How do the environmental activities of food firms affect local communities on different value chain levels? And what direct positive effects do these activities have? These are the questions to which this work will seek the answers. It must be noted that the focus of this work only on companies within the food industry was taken due to the work's limited scope and time frame. Therefore the main research question of this work and it is following:

How can food companies manage effectively environmental sustainability through their activities across the value chain?

The focus on food industry was chosen due to its direct link on people's lives as well as its dependence on the environment, namely natural resource such as land and water. Even more importantly, food industry presents remarkable environmental impacts (Del Borghi et al., 2014; Ohlsson, 2013; Jeswani, Burkinshaw and Azapagic, 2015; Davidson et al., 2015). It is estimated that food production contribute from 19% up to 29% to the global anthropogenic emissions (Jeswani, Burkinshaw and Azapagic, 2015), especially greenhouse gasses – about 25% (Ohlsson, 2013). Probably the largest impact on the environment when speaking about food industry is made by agriculture which contributes more than 80% to the anthropogenic emissions (Jeswani, Burkinshaw and Azapagic, 2015). Agriculture also uses around 70% of planet's resources of freshwater and occupies more than 50% of the world's vegetated land (Jeswani, Burkinshaw and Azapagic, 2015). It is also highly responsible for the pollution of rivers and lakes due to the leakage of nutrients and chemicals caused by chemical fertilizers and pesticides. Excessive usage of fertilizers applied to farms also very often leads to the pollution of soil and ground waters (Ohlsson, 2013; Davidson et al., 2015; Jeswani, Burkinshaw and Azapagic, 2015). Apart from that, food production also consumes a significant number of energy. According to Jeswani, Burkinshaw and Azapagic (2015) food industry is responsible for around 30% of the global energy consumption, especially in its manufacturing stage. The same authors further note that also transportation of food significantly contributes to air pollution, especially depletion of the ozone layer, as well as depletion of fossil resources and photochemical smog (Jeswani, Burkinshaw and Azapagic, 2015). Everything what is mentioned above is the reasons why the concept of environmental sustainability is so challenging for food industry. Therefore as it was mentioned before, this work will focus food companies and how they can manage effectively their environmental sustainability efforts and activities.

Structure of the work

This work starts with the chapter related to philosophy of science which explains how a research in social sciences is done as well as it presents different approaches to paradigms and paradigm classification together with methods used for this work. Following chapter briefly explains the concept of sustainability and sustainable development as well as it outlines the value chain concept and its relation to sustainability. In the next chapter, the

literature review is conducted with a focus on different approaches to applying sustainability and review of selected food articles which used LCA methodology. The next chapter conducts the empirical research using selected companies – Nespresso and Starbucks – as a case study. After that the discussion on findings from the empirical part of work follows and the work ends with the conclusion and its limitations.

1. Philosophy of science

In this section, the paradigm discussion is briefly presented in order to demonstrate differences among individual paradigms as well as to present the paradigm which this work will follow. Then justification of the chosen approaches to the selected topic will follow.

1.1 Paradigm

Every science and field of research is characterized by different beliefs and understandings about the world and what should be studied. Scholars have different views on what questions should be asked, how the research should be conducted and how the results should be interpreted. This constitutes the characteristics for a paradigm. Paradigms are not static, but they change over time according to how the society and human beliefs evolves (Guba and Lincoln, 1994; Kuada, 2009; Kuada, 2010). Paradigms are usually described in terms of ontological, epistemological and methodological assumptions together with assumptions about human nature (Guba and Lincoln, 1994; Kuada, 2009; Kuada, 2010).

Ontology asks the question whether the social world is an external reality which affects a human being or it is the individual human being who creates his own social world. Ontology is therefore described as the nature of what researchers seek to know, what is considered to be a reality. It has two positions: either realism or nominalism. The first one assumes that an objective reality does exist and it is external to the individual's cognition. Moreover, it is driven by natural laws and mechanisms, which means that it is relatively resistant to changes. On the other side, nominalism views the reality as constructed by mutually interacted individuals and existing because of the names, labels and concepts (Guba and Lincoln, 1994; Kuada, 2009; Kuada, 2010; Burrell and Morgan, 1979).

Epistemology is handling the question “how we know what we know” (Kuada, 2010, p. 5). It implies the way how scholars see the nature of knowledge and means of knowing. According to the duality of the objectivism and subjectivism, epistemology can be also viewed from two positions: positivism and anti-positivism. Researchers following the positivist approach believe that knowledge is something which can be acquired by observation and that anyone can conduct an objective study. This is why they look for regularities and causal relationships

in order to understand and predict the social world. Whereas researchers following anti-positivism assume that it is the individual who creates his own social world. Furthermore, they see the world as essentially relativistic and hold the opinion that researcher has to personally experience the studied phenomenon if he wants to understand it (Kuada, 2009; Kuada, 2010; Burrell and Morgan, 1979).

Human nature relies on the researcher's perception of the relationship between human beings and their environment (Kuada, 2010). It deals with a question whether the social environment is viewed either as outside the individual consciousness or as something co-created by human beings. Similarly to ontology and epistemology, human nature can be also approached from two points of view: determinism and voluntarism. Determinism looks on individuals as they are completely determined by the environment and situations, whereas voluntarism presumes the existence of free-will under which human beings can act completely autonomously (Kuada, 2009; Kuada, 2010; Burrell and Morgan, 1979).

The last set of assumptions which forms paradigm is methodology. It can be described as the strategy or research design of all the actions and methods used for the entire research process. It specifies researcher's approach to study. Researcher can choose from two main approaches. He can either choose to adopt an objective approach called "nomothetic" (or so called positivism), or he can follow so called interpretivism, which follows the ideographic methods of research. Following the nomothetic approach, he will use systematic protocols and techniques such as surveys, questionnaires and personality tests in order to observe the social world from the outside. But if the researcher chooses to follow interpretivism, then he will adopt a methodology based on his subjective experience and interpretation of the investigation as he believes that only by being a part of the research he can truly understand the social world (Kuada, 2009; Kuada, 2010; Burrell and Morgan, 1979).

1.2 Classification of paradigms

During time, the scientific debate on how to approach social science studies has led to a creation of numerous typologies of paradigms. As the probably most known have become the FISI classification of paradigms and the RRIF classification of Burrell and Morgan (1979). The RRIF is very similar to the FISI classification as it contains the two same types of

paradigms – interpretivism and functionalism. But unlike the FISI, RRIF classification is used more often in political sociology than in business economics. This is also the reason why only the FISI classification will be mentioned here as it is more applicable in this work as well.

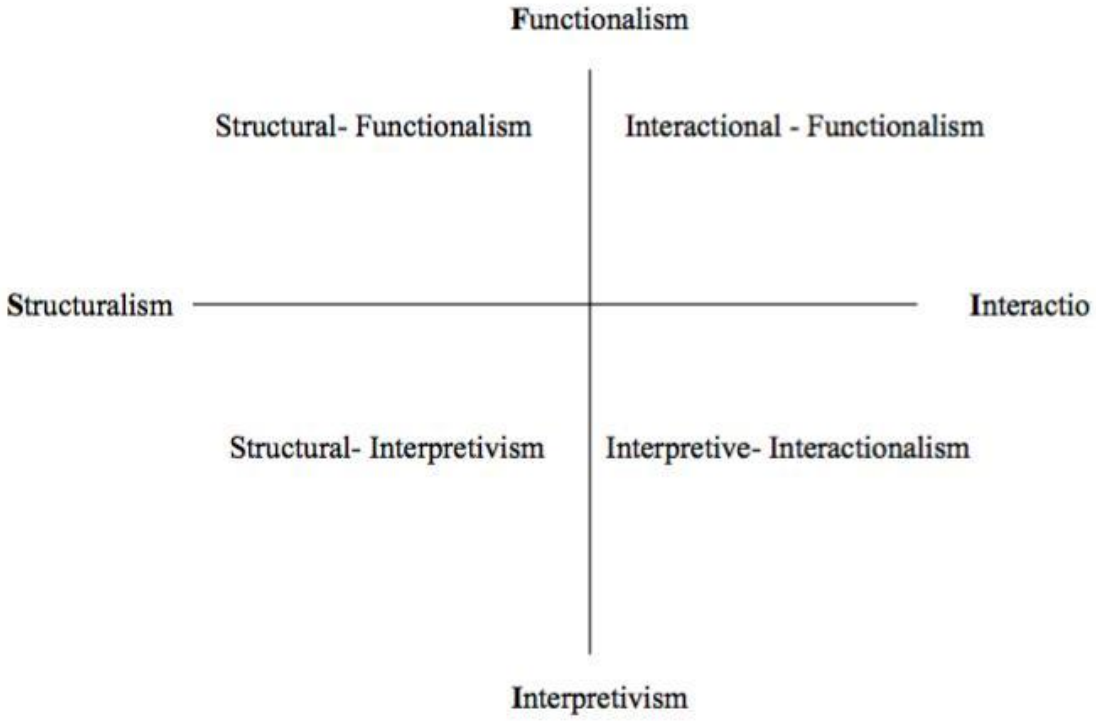

Figure 1: FISI classification of paradigms
Source: Kuada (2010, p. 39)

FISI classification (Figure 1) identifies four major types of paradigms: functionalism, interpretivism, structuralism and interactionalism. The first one, functionalism, refers to a positivist epistemology which means that it subscribes to objectivist types of research. In business economics the functionalist paradigm sees organizations as willing to make structural changes in order to adapt to the environment while they want to maintain effectiveness in a given situation. A classical example of functionalist paradigm is stimulus – organism – response (S-O-R) model which argues that organizations react to the incentives (stimulus) from the outside environment with specific behavior (Kuada, 2010). Moreover, organizations are by Kuada (2010) viewed as simple biological organisms whose reactions are determined by the surrounding environment.

On the other hand, researchers following interpretivism will focus more on understanding the experiences and events the people are involved in rather than on explaining the events as objective evidence. They believe that no researcher can be truly objective (Kuada, 2010). Whereas structuralism does not sees humans as individuals as it rather views them as complex systems of interrelated parts. Thus it emphasizes the collective above the individual. Structuralism refers to determinism as it sees each individual's social position as determined by the structure of the system. In business studies organizations are analysed with variables such as size, type of industry, number of competitors, number of buyers and seller (Kuada, 2010). The last paradigm of FISI classification is interactionalism. It deals with the question how different individuals with different experiences and beliefs can understand each other. Thus it stresses the role of human interactions in determining one's behavior. According to interactionalism, individuals act based on their own intentions. They do not simply respond to the stimuli from the environment in pre-set steps as it is believed in functionalism (Kuada, 2010). It is noteworthy that these four types of paradigms can be usually found in social sciences in combinations.

1.3 Own methodology

The aim of this methodology section is to present analytical approaches and methods used in this work. As it was already mentioned, the main objective of this work is to describe and analyze how food companies can manage effectively environmental sustainability through their activities across the value chain. This work is also concerned with the impact of firm's value chain activities on local communities on different value chain levels.

Within the academic literature related to sustainability, there can be found various theoretical assumptions on which it can be based. However, as it is noted in the work of Stubbs and Cocklin (2008), among the most used views related to companies and their relation to sustainability can be found: the neoclassical economic paradigm, ecocentrism and ecological modernization. The neoclassical view on economics, which is focused on pursuing the continuous economic growth through operations on free markets together with continuously increasing consumption of products and services, is the dominant one in today's world. It also puts a great emphasis on financial performance such as maximizing profits and shareholder value. Implementation of sustainability principles into the business operations is usually

viewed as connected with increased costs. Those who follow this paradigm believe that organizations pursue sustainability only if it is in their own self-interest (Stubbs and Cocklin, 2008). On the other hand, ecocentrism stands in the opposition to the neoclassical paradigm as it values the nature above all. Followers of this view believe that it is impossible to have infinite growth when the natural resources are limited. Whereas ecological modernization seeks the middle ground as it tries to blend both previously mentioned theoretical approaches. This view presumes that there are no trade-offs between economic prosperity and environmental concern. Thus in the eyes of this theoretical approach it is possible for organizations to seek self-interest without doing harm to stakeholders and nature. Moreover, it can improve the welfare of its stakeholders, minimize its environmental impacts and be profitable at the same time (Stubbs and Cocklin, 2008). Therefore it was considered that adopting of ecological modernization will best serve the interests of this work.

When considering FISI classification, a functionalist view is taken as it refers to realist, positivist, determinist and nomothetic approach. According to Burrell and Morgan (1979), functionalism is problem-oriented and seeks to provide solutions to practical problems. It emphasises "the importance of understanding order, equilibrium and stability in society and the way in which these can be maintained," (Burrell and Morgan, 1979, p. 26). In the functionalist view, organizations are able to make structural changes to adapt the environment in order to maintain effectiveness (Kuada, 2010).

For this work a case study was chosen as a research method. It is known that case study can be used for both positivist and anti-positivist types of research as well as it can be used for exploratory, descriptive or explanatory purposes. As Kuada (2010) mentions in his work, case studies are preferred research method for answering questions "how" and "why", especially when a researcher does not hold the control over the studied phenomenon usually occurring in some real-life context. These are the reasons why the case study was chosen for the purposes of this work. As it was already mentioned, the focus of this work will be on companies within food industry. More specifically, this work will focus on large multinationals as their operations and activities across value chain usually cross state borders, meaning these companies operate on global scale. Thus Nestlé Nespresso SA (further referred only as Nespresso) and Starbucks Corporation (further referred only as Starbucks) were selected as organizations which will be analyzed for the exploratory purposes of this multiple case study.

This work is based on both primary and secondary data collection. Primary data were gathered from both Nespresso and Starbucks websites and companies documents available online. For the secondary data collection, mainly studies related to sustainability and especially to environmental sustainability and studies of food companies were used. Thus the reviewed literature comprises from both theoretical and empirical approaches. For the purposes of this work, it was used more than 50 different journal articles and books which were found via various databases such as Scopus, Elsevier, Springer and Google scholar. Besides that, three conference papers were used as well, especially for their academic value and high number of citation. High number of citation of articles used in this work also ensures the validity of the secondary data as the reliability and representativeness is usually questioned.

2. Introduction to sustainability and sustainable development

Before the actual review of academic literature, it was considered as necessary to outline the concept of sustainability and sustainable development first, as the work is dealing with a concept of sustainability and especially with applying environmental sustainability practices into activities of food companies. Therefore some of the definitions and views on sustainability will be presented in this section as well as the concept of value chain and its relation to it.

The definitions of sustainability across the academic literature vary as sustainability is quite young and complex concept (Hart, Milstein and Caggiano, 2003; Carew and Mitchell, 2008). However, everywhere the sustainability is viewed as a long-term concept. Goodland (1995, p. 14) in his work claims that "sustainability means maintaining environmental assets, or at least not depleting them." Whereas de Ron (1997, p. 99) views sustainability as "the rearrangement of technological, scientific, environmental, economical and social resources in such a way that the resulting heterogeneous system can be maintained in a state of temporal and spatial equilibrium."

The term sustainability can be often found together with a term sustainable development. Although these two terms are synonyms, many authors use them interchangeably (Sutton, 2004; Ashby, Leat and Hudson-Smith, 2012). Sutton (2004, p. 13) views in his work sustainable development as "development that does not undermine the environment, society or the economy, locally or globally, now or in the future, and that delivers genuine progress socially, environmentally and economically." Thus he sees sustainable development as more interconnected with the environment, society and economy. Also authors Moldan, Janouskova and Hak (2011) understand sustainable development itself as economic and social development that should be environmentally sustainable.

Nevertheless, the origins of sustainable development term can be traced back to 1970s. It emerged as an outcome of a concern about the global environment due to the increased level of pollution and the increasing usage of raw materials and energy (de Ron, 1997). Later on, as pointed out by Ashby, Leat and Hudson-Smith (2012), the most used definition of

sustainable development became the following: “Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs,” (Drexhage and Murphy, 2010). This definition can be found in almost every article related to sustainability and many authors base on it in their works (de Ron, 1997; Schröder, Holbach and Müller-Kirschbaum, 2015; Hart, Milstein and Caggiano, 2003; Graedel and Klee, 2002; Sutton, 2004; Porter and Kramer, 2006; D'heur, 2015; Moldan, Janouskova and Hak, 2011; Goodland, 1995; Dao, Langella and Carbo, 2011; Morelli, 2011; Kruse et al., 2009; Littig and Grießler, 2005; Reinhardt, 2000; Carew and Mitchell, 2008; Isaksson and Steimle, 2009; Lee, 2009; Glavic and Lukman, 2007).

This definition first appeared in the report *Our Common Future*, or so called “Brundtland report”, published by the World Commission on Environment and Development in 1987. Sutton (2004) points out that this definition is not what was originally written in the report, and he mentions the original: “Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs,” (United Nations, 1987, p. 8). The same author further stresses that this original statement lays out only an outcome of sustainable development, not directly saying what sustainable development itself is. However, the changed version of Brundtland report's definition of sustainable development has become very used over the years not only by scholars but also by public. The issue with Brundtland report's definition is that it is more or less only general and allows a wide range of different interpretations as noted by Isaksson and Steimle (2009). Thus, for instance authors Littig and Grießler (2005) derive from it the main goal of sustainable development which is according to them a preservation of the environment and resources necessary for economic and social life as they are essential for meeting the future needs of humanity. Apart from that, some authors such as Hart, Milstein and Caggiano (2003) use the Brundtland report's definition of sustainable development for defining the sustainability itself. Thus it is very difficult to identify when some author is talking about sustainability or sustainable development as these terms are synonyms as well as they are interrelated. However, general approach to sustainability is that it is viewed as a concept which incorporates economic development with social development and environmental protection together with a responsibility for present and future generations (Kruse et al., 2009).

2.1 Three dimensions of sustainability

To the present day the concepts of sustainability and sustainable development have evolved and are usually referred in terms of three interconnected dimensions (sometimes called pillars) of sustainability: environmental, economic and social sustainability (Moldan, Janouskova and Hak, 2011; Boström, 2012). Some authors refer sustainability to the concept of "triple bottom line" which was originally coined by Elkington in 1997 in his book *Cannibals with forks* (Elkington, 1998; Elkington, 2004; Porter and Kramer, 2006; Schröder, Holbach and Müller-Kirschbaum, 2015; D'heur, 2015; Hart, Milstein and Caggiano, 2003; Sutton, 2004; Stubbs and Cocklin, 2008; Rankin et al., 2011). However, this work will not be talking about this concept more in depth as triple bottom line is rather about solving firm's issues (Sutton, 2004). Moreover, as it is stressed by Sutton (2004), the triple bottom line is mainly about extending the idea of the "financial bottom line" as it also includes environmental and social concerns. The same author also argues that if a firm decides to adopt the triple bottom line approach, it does not necessarily mean it is trying to deal with sustainability issues. In words of Sutton (2004, p. 19): "The fact that the triple bottom line approach directs attention to environmental, social and economic issues does not in itself mean that it is 'about' sustainability."

As it was already mentioned, there are three dimensions of sustainability: environmental, economic and social sustainability. Environmental sustainability can be described as the ability to maintain valuable things in the environment such as natural resources for the future generations, especially not to eliminate, degrade or otherwise diminish them (Sutton, 2004; Moldan, Janouskova and Hak, 2011). Whereas economic sustainability can be viewed as maintaining continuous economic growth in the future. It can be also seen as a firm's pursuit in continuous growth (Figge and Hahn, 2012; Lien, Hardaker and Flaten, 2007). On the other hand, social sustainability according to authors Moldan, Janouskova and Hak (2011) is perceived as the extent to which not only social values, but also social identities, relationships and institutions can be maintained in the future. Social sustainability is also concerned with poverty, injustice and human rights as well as it handles with employees welfare, mainly their fair and equitable treatment (Ashby, Leat and Hudson-Smith, 2012).

Despite the fact that in the centre of the interest of this work is only environmental sustainability, I decided to present in this section also economic and social sustainability as

all three dimensions are interconnected and have strong linkages among themselves. Particularly strong linkage is present between environmental and economic sustainability as the economic growth depends on the environmental resources (Goodland, 1995; Sutton, 2004). On the other hand, healthy economy is needed for sustaining human well-being (Moldan, Janouskova and Hak, 2011). However, the connection between environmental and social sustainability is also very strong as healthy environment is needed for sustaining human well-being, because humankind depends on both natural and human constructed environment in countless ways (Goodland, 1995; Sutton, 2004; Moldan, Janouskova and Hak, 2011). Goodland (1995) even says that social sustainability could not exist without environmental sustainability, because he views it as a prerequisite for social sustainability. Nevertheless, authors Moldan, Janouskova and Hak (2011, p. 5) claim that it is the social sustainability which is "probably the most important for the long-term survival of human civilizations." On the other hand, Figge and Hahn (2012, p. 93) believe that "without corporate support society will not achieve environmental sustainability, as firms represent the productive resources of the economy." Thus it can be concluded that sustainability in one dimension is necessary for sustainability in another (Sutton, 2004).

2.2 The concept of value chain and its relation to sustainability

As the research question refers to managing environmental sustainability through the activities across the value chain, it was considered as necessary to explain the concept of value chain as well. The concept of value chain is mostly known due to the work of Harvard's professor Michael Porter. Porter originally developed value chain as an analysis tool for examining firm's competitive advantage in his work called *Competitive advantage: Creating and Sustaining Superior Performance* published in 1985. In this work Porter (1985) defines a firm as a collection of various activities related to its product, which can be represented by value chain. As the author further says, the firm's activities reflect firm's history, its strategy and approach to implementing that strategy, as well as economics of the activities themselves. He calls it value chain as it is a chain of firm's activities which all engage in adding a value to firm's product. Value is then explained as "the amount buyers are willing to pay for what a firm provides them," (Porter, 1985, p. 38).

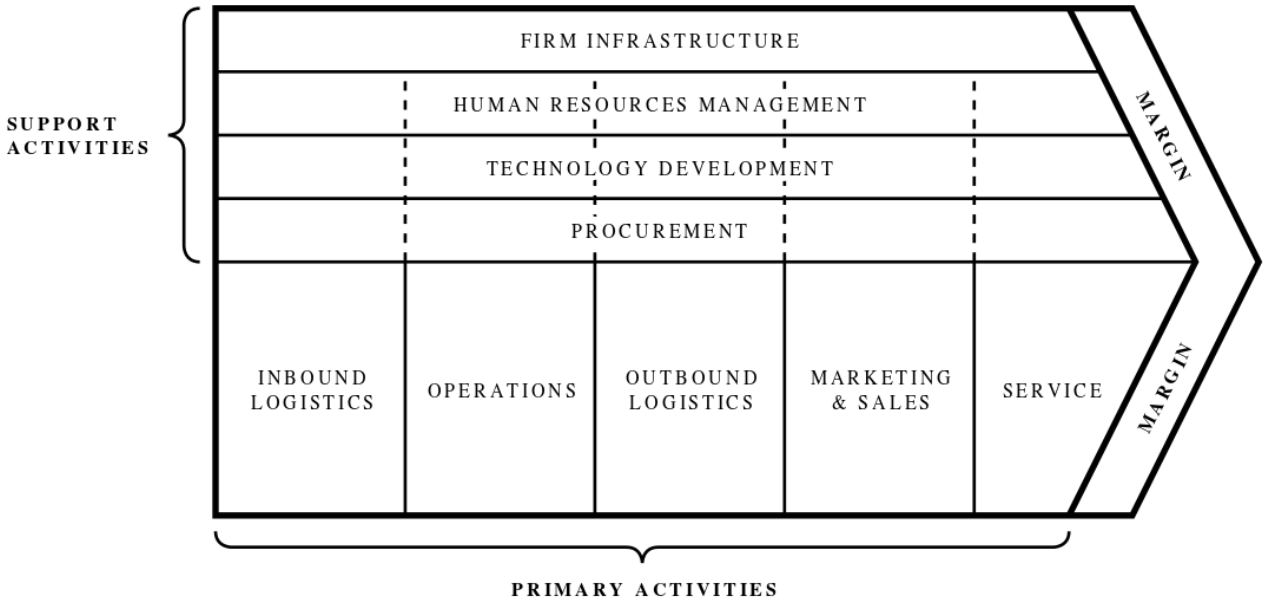

Figure 2: Generic value chain
Source: Porter (1985, p. 37)

As it can be seen in Figure 2 Porter (1985) divides the value chain activities into primary and support activities. The primary activities are the core activities related to the product, which means product's physical creation, sale and transfer to the buyer as well as after sale assistance (Porter, 1985; Porter, 1989). Thus primary activities are namely: inbound logistics, operations, outbound logistics, marketing and sales, and service (Porter, 1985; Porter, 1989). On the other hand, support activities support the primary activities as they provide the input and infrastructure for them. The support activities are following: human resource management, technology development, and procurement (Porter, 1985; Porter, 1989). A special category of support activity is company infrastructure as it is not associated with any particular primary activity; in contrast, it supports the entire value chain (Porter, 1985).

However, nowadays the value chain can be also perceived differently. One of the very used views in the literature related to sustainability is the one which is mentioned in the work of D'heur (2015). This author sees value chain as more related to product lifecycle than firm's activities. This is the view on value chain which is adopted by this work. According to D'heur

(2015) value chain represents all stages of product lifecycle from the concept and raw material sourcing, through production and distribution to the usage by end customer and to the point where the product is either disposed in a form of trash or reused as a source for making another product (D'heur, 2015). The same author also claims that the goal for value chain is as highest operational efficiency for planning and business processes as possible. Apart from that, he also adds that these days value chain serves more as firm's strategic means for creating and maintaining flexibility and future competitiveness (D'heur, 2015). Moreover, he stresses that the companies which employ sustainable practices at all stages of the value chain can gain competitive advantage over their competitors, thus become the leaders in their fields (D'heur, 2015). Besides, value chain is in direct relation to sustainability as every value chain activity affects as well as it is affected (either positively or negatively) by numerous societal issues, such as natural resource and water use, health and safety, working conditions (D'heur, 2015; Porter and Kramer, 2006; Porter and Kramer, 2011).

However, when it comes to sustainability and sustainability issues, D'heur (2015) points out the fact that the majority of today's companies is focused on efficiency and speed while optimizing the value chain. The firms start to care about sustainability only if sustainability can help them to reduce economic costs through energy, water and waste savings, which implies a neoclassical view on sustainability (D'heur, 2015; Porter and Kramer, 2011). However, according to D'heur (2015), sustainability still should be among the key attributes of any value chain. As every activity in company's value chain affects environment as well as society in form of local communities, it also has either positive or negative social consequences. That is also the reason why it is important to pay the attention to these effects and why one of the research questions relates to that.

3. Literature review

When searching for the academic literature related to the topic of this work it was found over 300 hundreds of articles. However, as relevant articles which could be used for the purposes of this work were identified only around 50 of them as it was already mentioned in the methodology section. Apart from that, the number of articles used in this literature review section had to be limited on the basis of several criteria. First, when considering the articles for the literature review, a search for articles containing keywords such as "sustainability", "environmental sustainability", "social sustainability", "economic sustainability", "sustainable development", "managing sustainability", "food industry", "company level", "value chain", "supply chain" and their various combinations was conducted via different electronic databases. As the most used and valuable databases were identified Scopus, Elsevier, Springer and Wiley online library. Then as another important criteria for using the particular article in this section was chosen the quality of an article – mainly represented by the number of its citations – together with the limited time scope of this work.

As the main research question starts with "How", thus refers to the ways of how firms can incorporate the environmental sustainability into their activities, I decided to present in this section some of the authors I found during the literature search and their view on which practices firms can use in order to implement environmental sustainability into their activities. Despite the fact that the main research question refers to food companies, it was considered as relevant to use the articles presented below anyway as I believe that their findings can be applied to food companies as well. However, these articles have the ability to answer the main research question only partially. This is because that despite the fact they present approaches and practices of applying environmental sustainability, they do not deal with their effectiveness. Apart from that, the articles used to present the approaches and practices do not clearly state with which intentions firms implement them and moreover, which theoretical foundations are followed. Thus it is hard to say what exactly motivates firms in adopting this concrete approach or practice.

When reviewing the studies conducted with firms within food industry, it was found out that a lot of authors uses life cycle assessment method (LCA) for its research. What is more, in relation to food industry, LCA has been very valued for its ability to assess the environmental impact of food products as well as to incorporate environmental aspects in developing more

sustainable food products (Cordella et al., 2008; Andersson and Ohlsson, 1999b; Andersson, 2000). Apart from that, LCA method also present the assessment and suggestions for improvement, in other words how firms can face the environmental sustainability challenges (Wang et al., 2010). Although according to data presented by Notarnicola et al. (2012), there could be found over 4,500 papers on LCA methodology by 2010, I found only several dozens of them which relate to food industry and for the purposes of this work I decided to use only four of them. Apart from the criteria mentioned above, the selected studies presented later in this chapter were selected mainly for their focus on food industry and their connection to agriculture. These selected studies also present the suggestions on how firms should change and improve their activities to be more environmentally sustainable, therefore they can be used for the partial answering of the main research question. Besides that, it was considered as necessary to include into this review the work of Van der Vossen (2005) as well as this author critically analyzes organic coffee production and its relation to the sustainability. Moreover, its findings related to coffee industry are important for this work as they are used later in empirical research part in relation to the cases of Nespresso and Starbucks.

3.1 Various approaches and practices to applying environmental sustainability

When searching through the academic literature related to sustainability, I found that several authors mention concrete approaches and practices of how firms can implement environmental sustainability into their activities. Among the most cited ones were found pollution prevention and product stewardship (Hart, Milstein and Caggiano, 2003; Hart, 2005; Rusinko, 2007; Glavic and Lukman, 2007; Ashby, Leat and Hudson-Smith, 2012). However Glavic and Lukman (2007) view pollution prevention more as a strategy than an approach. Generally speaking pollution prevention is an approach with which firms can reduce or prevent pollution from all their current activities which means that it refers to the entire value chain. Among pollution prevention practices can be found for instance reducing the usage of resources such as water, energy and material resources as it also includes reducing the amount of waste and emissions generated, and recycling. Therefore pollution prevention is focused on improving the environmental efficiency and it can lead to both lowering firm's costs and increasing profits at the same time (Hart, Milstein and Caggiano, 2003; Hart, 2005; Rusinko, 2007; Glavic and Lukman, 2007). Similarly product stewardship

practices also include the entire product life cycle – from gathering raw materials, through production processes, to its usage and final disposal (Hart, Milstein and Caggiano, 2003). Thus it includes also other stakeholders such as R&D, product designers, suppliers, customers, communities, nongovernmental organizations and media. Among product stewardship activities belong for instance using renewable resources, redesigning of products and manufacturing processes to be more environment friendly as well as encouraging suppliers to behave more environmentally responsible (Hart, Milstein and Caggiano, 2003; Rusinko, 2007).

Apart from that, in a work of Ashby, Leat and Hudson-Smith (2012), there can be also found methods such as design for environment and reverse logistics. As it can be concluded from its title when a firm adopts design for environment, then it focuses on the first stages of a product while it tries to design and develop a product which is durable or can be used repeatedly and is environmentally compatible in disposal at the same time. On the other hand, reverse logistics relates to return of a product to the central firm. It is focused on the involves maximum utilisation of used products as its main goal is to reduce the amount of materials used as well as to secure reusing or recycling of a product. Besides that, in the works of Glavic and Lukman (2007) and Ball et al. (2009), there can be found zero waste as an approach by which firms can achieve zero carbon emissions. Zero waste is focused by its title on minimizing waste towards zero while maximizes recycling. When firms apply this approach, they should also ensure that their products can be reused, regenerated or repaired, so they can return back to the marketplace. Thus zero waste approach sees firm's product waste not as a waste, but as a new kind of resource (Glavic and Lukman, 2007; Ball et al., 2009).

In his work *Innovation, creative destruction and sustainability* Hart (2005, p. 23) developed a matrix called "Sustainability portfolio" (Table 1) where he distinguished between firms concrete environmental activities which are more oriented towards presence or future. As it can be seen from Table 1, the portfolio includes already mentioned pollution prevention and product stewardship which are located in a left column, which means that they are focused on current firm operations and their impact is more "today". Whereas clean technology and sustainability vision are practices which are more long-term. Clean technology is mainly about replacing non-renewable energy sources with renewable ones, developing new, more sustainable technologies, thus it is about innovations in general (Hart, 2005). On the other

hand, sustainability vision's focus is on emerging markets as Hart (2005) sees a big potential in developing countries and its poor labor force. The purpose of a firm which adopts this activity should be in shortening the gap between rich and poor (Hart, 2005). As it can be noticed, this practice does not relate entirely to the environmental sustainability as it is more connected to the social dimension of sustainability. However, it was considered as necessary to mention it, so the entire sustainability portfolio could be presented here.

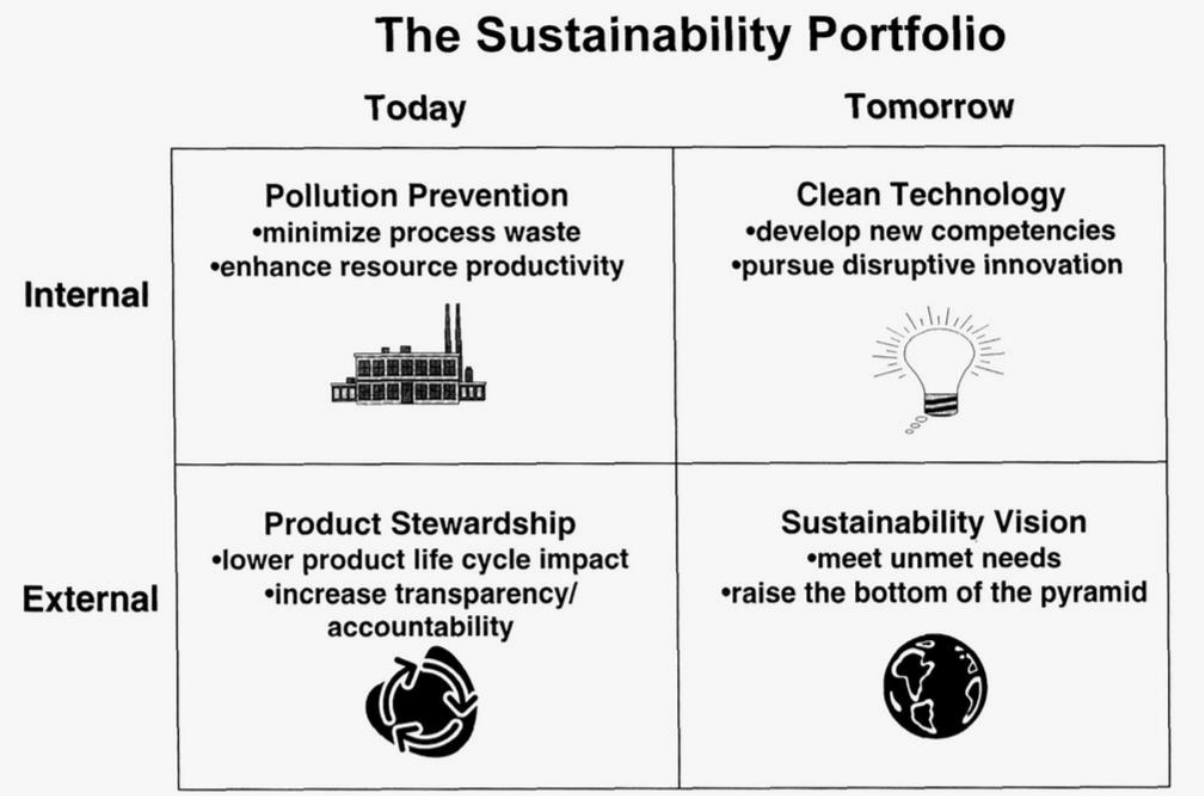

Table 1: The Sustainability Portfolio
Source: Hart (2005, p. 23)

To conclude all the practices presented there, the words of Hart, Milstein and Caggiano (2003, p. 64) are used: "Taken together, as a portfolio, such strategies and practices hold the potential to reduce cost and risk; enhance reputation and legitimacy; accelerate innovation and repositioning; and crystallize growth path and trajectory all of which are crucial to the creation of shareholder value. The challenge for the firm is to decide which actions and initiatives to pursue and how best to manage them." At the end of this subchapter, it is also worth mentioning that authors Figge and Hahn (2012) see environmental strategies of firms only as their means of how firms try to increase their economic value. However, the authors

also believe that the right strategies enable firms not only to maximize the economic capital efficiency, but maximize their contribution to sustainability as well, thus create economic and environmental value at the same time. Firms especially try to use less environmental resources per unit of production, which means to be more efficient in using environmental resources. Therefore the authors imply the possibility of creating win–win situations which can bring both environmental protection and financial success (Figge and Hahn, 2012).

3.2 Review of selected LCA studies

Authors Jeswani, Burkinshaw and Azapagic (2015) in their work *Environmental sustainability issues in the food–energy–water nexus* use life cycle assessment to explore and estimate the environmental impact of breakfast cereals and snacks manufactured by Kellogg Europe, one of the leading producers of cereals in Europe. Even though the study does not include the firm's entire value chain, but only its supply chain, the study's value is in the presentation of the improvement opportunities how to integrate environmental sustainability along the company's supply chain. With a help of LCA the study conducts an analysis mainly of carbon, water and energy footprints of breakfast cereals in order to explore the issues and identify the environmental hotspots in the food–energy–water nexus related to the products.

The results of the study revealed that the main hotspots for the most of the environmental impacts are the agricultural production of the ingredients and manufacturing phase of breakfast cereals. That is because these two stages have much larger share of the environmental impacts (such as global warming, water footprint, land use, eutrophication, etc.) than the other studied life cycle stages. However, the authors say that firms should keep in mind the impact of packaging and transport as well (Jeswani, Burkinshaw and Azapagic, 2015). Jeswani, Burkinshaw and Azapagic (2015) in their work also suggest a couple of solutions, or opportunities, which the company could use as solutions. For mitigating the environmental impacts in agriculture, they suggest to especially reduce use of chemical fertilizer, use crop rotation and better land management. Therefore the company should engage more in relationships with its farmers in order to help them improve agricultural practices, thereby improve not only the environment, but farmers' livelihoods as well. The company should further improve the energy efficiency in manufacturing processes through for instance use of renewable energy technologies. Similarly, the company should try to

improve the design of their packages and use some alternative packaging too. In this study, there was also revealed that even consumers can play a significant role in reducing the environmental impacts of the products as they are directly involved in the last phases of the life cycle.

In a study called *Life cycle assessment of a rice production system in Taihu region, China*, Wang et al. (2010) used a LCA method in order to examine the environmental impact of the rice production system in Taihu region, China. Despite the fact that this study does not examine the entire product life cycle, it was considered as important to include it here mainly for its findings about agriculture. Thus the study focuses only on the following stages: raw material extraction, agrochemical production, transportation and arable farming in the field. Within these stages, it concentrates on environmental impacts such as energy depletion, water depletion, global warming, acidification and aquatic eutrophication. The study revealed that the two major environmental impacts connected to the rice production are aquatic eutrophication and water depletion. The overuse of the chemical fertilizer to paddy soil was identified as the main cause of pollution. Apart from that, the production of nitrogen fertilizer itself is very energy-intensive and emits large quantities of SO_2 and CO_2 as well. Therefore it was recommended to reduce the amounts of fertilizer, to apply energy-saving and clean production techniques as well as to reduce the water consumption and strengthen water management (Wang et al., 2010).

The study called *Life Cycle Assessment of Bread Produced on Different Scales* conducted by Andersson and Ohlsson (1999a) is different from the two mentioned above in that it is comparing potential environmental effects of different scales of bread production. It compares the production carried out at home, at a local bakery and at two industrial bakeries with different sizes of distribution areas. The study focuses on the entire bread life cycle consisting from agricultural production, milling, baking, through packaging and transportation to consumption and waste management. Furthermore, the assessed environmental impact includes global warming, acidification, eutrophication and photo-oxidant formation (Andersson and Ohlsson, 1999a).

The study revealed that for all the systems studied, the most critical environmental impacts are in the form of a leakage of nitrogen from the fields and the emissions related to the production of nitrogen fertilizers. The study further revealed that the environmental impact of

food processing depends on the fuel used for baking. The authors suggest the replacement of diesel as fossil fuel with natural gas or electricity which would improve the environmental performance. Apart from that, transportation was identified as a hotspot in all of the systems with the exception of local bakery as it does not need any distribution system. Surprisingly, the packaging was not identified as a hotspot at all in any of the systems (Andersson and Ohlsson, 1999a). As a system with the largest environmental impact was identified the large industrial bakery, especially due to its consumption of primary energy and contribution to global warming, acidification and eutrophication. Besides that, the study also revealed that the home baking consumes relatively large amounts of energy as well together with large amounts of water, even more than the smaller industrial bakery and the local bakery. Therefore it can be concluded that comparison of systems for the production and consumption of bread revealed that the energy efficiency and the source of energy used for baking are important aspects as well as the distances and logistics involved in the distribution of the bread (Andersson and Ohlsson, 1999a).

Similarly to the previous one, also Cordella et al. (2008) performed a study called *LCA of an Italian Lager Beer* in which they compared environmental impacts of two different packaging options of Italian lager beer – 20 L returnable stainless steel kegs and 33 cL one way glass bottles. This study adopts the entire cradle-to-grave approach with investigation of following systems: production and acquisition of materials and energy, brewing process, packaging, transports, beer consumption and waste disposal. Even though this study explores a beer, which cannot be considered as a food product, but it is classified as an alcoholic beverage, the contribution of this study is in the assessment of how different packaging methods affect the product's environmental impact (Cordella et al., 2008). The study revealed that beer life cycle causes the most environmental impact in form of inorganic emissions, land use and fossil fuels consumptions. Moreover, it was found out that the beer sold in kegs has about 68% lower environmental impact than the beer sold in glass bottles. That is mainly because of the production of glass bottles which requires large amounts of energy and produces higher emissions. As the most critical phase for the kegged beer was identified transportation, whereas for the bottled beer as the most critical stage was identified beer consumption. Therefore the authors of the study recommend to the firm to set up and promote marketing strategies which would encourage consumers in buying reusable packaging and preferring draught beer over the bottled one. Apart from that, it is also recommended to optimize solutions for the product delivery, improve energy efficiency, pay more attention to choosing

the suppliers of glass bottle as well as to monitor, register and analyze the input and the output streams of the brewery system (Cordella et al., 2008).

Despite the fact that some studies presented here use LCA method to analyze only part of product's life cycle, it was observed that in almost all of them the agricultural production together with the production and use of pesticides and fertilizers contributes to the environmental impact the most. Apart from that, the packaging and processing are significant stages in the total environmental impact made by food products as well which is caused mainly by their energy consumption. In today's world, as it is noted in work of Andersson (2000), many companies are also dependent on fossil fuels such as diesel or coal as they use them for their product processing, agricultural machines or transportation (which has been identified as critical stage for some products as well). Furthermore, the study of Cordella et al. (2008) pointed out on the fact that also consumers can during product's consumption stage and disposal stage affect significantly the environmental sustainability. It is also worth noted that the environmental impact of each stage of product life cycle can differ for different products.

The above reviewed studies were presented here with the intention to at least partially answer the main research question as it was outlined in the beginning of this literature review. Just for the remainder the main research question of this work is following: How can food companies manage effectively environmental sustainability through their activities across the value chain? The reviewed studies based on their researches have presented various approaches and practices how firms can lower their environmental impact and greener their practices. Concretely it was suggested that firms should in relation to agricultural techniques reduce use of chemical fertilizer, but they should use crop rotation and focus on better land and water management (Jeswani, Burkinshaw and Azapagic, 2015; Wang et al., 2010). Apart from that authors Jeswani, Burkinshaw and Azapagic (2015) suggest that firms should help farmers in improving agricultural practices, which would not only improve the environment, but farmers' wellbeing as well. Besides that, it was also found out that firms should focus on improving energy efficiency by for instance applying energy-saving, clean production techniques or using renewable energy sources (Jeswani, Burkinshaw and Azapagic, 2015; Wang et al., 2010; Cordella et al., 2008). Moreover, firms should focus on the improvement of the design of product packages as well as use of some alternative packaging (Jeswani, Burkinshaw and Azapagic, 2015). Furthermore, as revealed in studies conducted by

Andersson and Ohlsson (1999a) and Cordella et al. (2008), firms should also focus on transport optimization as well as they should try to replace fossil fuels with less environmentally harmful ones. The reviewed studies also pointed out on the fact that consumers cause significant environmental impact, therefore firms should focus on engaging consumers in more environmentally sustainable behavior such as recycling or buying reusable packaging (Jeswani, Burkinshaw and Azapagic, 2015; Cordella et al., 2008).

However, it was considered as necessary to include into this review the work of Van der Vossen (2005) as well. Van der Vossen (2005) in contrast to the studies mentioned above do not use in his work a life cycle assessment method, but critically analyzes organic coffee production in general and pays special attention to the agronomic and economic sustainability. For this reason and also for its focus on coffee industry, the study was considered as necessary to be reviewed here as well. As it is noted by Van der Vossen (2005), organic coffee production is claimed to combine economic viability with environmental sustainability for which the consumers are willing to pay extra.

Coffee producers that want their coffee to be considered as organic have to adhere to many strict rules and practices such as the regular application of composted organic matter, 'natural' methods of disease and pest control, and shade trees. Despite the fact that many coffee producers are concerned with environmental sustainability issues, their primer motivation are still the economic benefits in form of the premium prices received from the certified organic coffee (Van der Vossen, 2005). However, the study revealed that organic coffee production is economically unsustainable for the small farmers due to the low yields of their fields in comparison to the conventional coffee production – an average yield of organic coffee plantation is about only 1/10 of the conventional coffee one (Van der Vossen, 2005). Moreover, for many farmers it is often difficult to meet the high demands and regulations in standards for getting an organic coffee certification. Van der Vossen (2005, p. 469) argues that "it seems clear that some use of inorganic fertilizers is necessary if maintenance of smallholder livelihoods is to be one of the criteria of sustainability." Thus it can be concluded that environmental sustainability practices which characterize organic coffee production and are especially demanded by consumers from western countries do not always have to lead to overall sustainability. In other words, an environmentally sustainable production of coffee does not necessarily mean an economic sustainable production and if the production is

supposed to be sustainable, it has to be covering all three dimensions of sustainability (Van der Vossen, 2005).

4. Empirical research

This empirical part of the work is based on the case study of Nespresso and Starbucks presented in Hamann et al. (2014) which was mainly focused on both firms coffee sustainability programmes concerning mainly ethical sourcing and waste reduction. The authors analyzed both companies sustainability activities and their achievements with a help of the Most Similar Systems Design (MSSD) method. Thus, this empirical research which is concepted as a case study of Nespresso and Starbucks uses findings from the work of Hamman et al. (2014) in order to primarily present the main challenges related to sustainability for both companies. Apart from that the empirical research further uses also information from the generally accessible firms' websites and their documents. Moreover, the subchapter related Starbucks C.A.F.E. Practices is primarily based on the findings from the work of Lee et al. (2007) as the author present and critically assess C.A.F.E. Practices from the supply management view. The last subchapter of this empirical part is focused on coffee certifications as they are implying sustainability standards for coffee producers and suppliers. Thus they have considerable importance not only for coffee retailers such as Nespresso and Starbucks which through them realize their sustainability programmes, but they play a key role in enhancing sustainability in coffee industry as a whole (Auld, 2010; Giovannucci and Ponte, 2005). For the certification subchapter the data mainly from the work Giovannucci and Ponte (2005) are used, because of its relevance and high number of citations. Therefore it can be concluded that for the empirical research part of this work were collected both primary and secondary data. Before presenting the firms sustainability programmes and their challenges, the brief overview of both firms will be mentioned.

4.1 Nespresso

Nestlé Nespresso SA (further referred only as Nespresso) was created in 1986 as one of the pioneering companies in the portioned coffee segment (Nespresso, 2016). Nespresso, headquartered in Lausanne, Switzerland, is technically a brand and part of Nestlé group that

is leading nutrition, health and wellness company with sales around CHF 88.8 billion (Swiss franc) in 2015 (Nestlé, 2016). It has to be noted that data reflecting solely financial performance of Nespresso was not found. Nevertheless, Nespresso presents itself as a luxurious brand focused on delivering the highest quality coffee tasting experience to consumers all over the world (Nespresso, 2016). The firm's main product is Nespresso capsules coffee machine system and the firm is focused on both direct-to-consumer and business-to-business services (Nespresso, 2016). In 2000 Nespresso introduced its boutique concept when it opened its first store for the consumers in Paris. Nowadays it operates 450 boutiques in 58 countries together with 3 production centres in Switzerland and employs over 12,000 people (Nespresso, 2016). Besides that, Nespresso was one of the e-commerce pioneering companies when it launched its first e-commerce websites in 1998, long ago before the e-commerce expansion. Moreover, the firm has been offering 24/7 ordering right from the beginning (Nespresso, 2016). Nespresso also presents itself as a responsibility company when trying to improve coffee farmers welfare and drive environmental sustainability (Nespresso, 2016). Nespresso (2016) says about sustainability following: "We are committed to ensuring sustainability throughout our operations, making clear commitments and seeking to create shared value and positive impact for farmers, consumers and society at large, while caring for the environment." Therefore over the years Nespresso has come up with several programmes related to sustainability such as Nespresso AAA Sustainable Quality Program, Ecolaboration and Positive Cup sustainability strategy to which the more attention will be paid later.

4.2 Starbucks

Starbucks Corporation as a specialty coffee roaster and retailer started its business in 1971 with a single store located in Seattle, US. Back in those times it was roasting and selling ground coffee, tea and spices. City of Seattle has remained important for the firm as it is where the firm's headquarter is located nowadays. Over the years Starbucks has expanded its portfolio and apart from selling fresh-brewed coffee, tea and other beverages, it also offers fresh foods, coffee and tea equipment, and Verismo system by Starbucks (capsules coffee machine system) (Starbucks, 2016). While being an employer to approximately 238,000 people worldwide (157,000 only in the United States) and operating more than 24,000 stores in 74 countries, Starbucks has grown up to one of the largest coffee companies. The

company's total net revenues which are counting to $19.2 billion (operating income $3.6 billion) come mostly from American region (69%) and its company-operated stores accounted for 79% of total net revenues (Starbucks, 2015; Starbucks, 2016). Starbucks licensed stores with the ratio of 47:53 to the company-operated stores are accounted only for 10% of the firm's total net revenues. It is mainly because the licensed stores generally have a lower gross margin and a higher operating margin than company-operated stores (Starbucks, 2015). Starbucks, similarly to Nespresso, also strives for serving the best coffee possible and being a responsible company at the same time. According to the firm's statement, its focus is on "ethically sourcing high-quality coffee, reducing our environmental impacts and contributing positively to communities around the world," (Starbucks, 2015). When integrating its global responsibility strategy into its overall business strategy, Starbucks focuses mainly on following three areas: ethical sourcing, environmental stewardship and community involvement (Starbucks, 2016). About these areas and Starbucks sustainability activities this work will talk later in this empirical part.

4.3 Sustainability programmes and initiatives of selected companies

Business with coffee as one of the most widely traded agricultural commodities in the world faced the oversupply in the past which had to be regulated. The trade quota by the International Coffee Agreement (ICA) was in effect until 1989 when the ICA broke down (Alvarez, Pilbeam and Wilding, 2010). This together with an enormous oversupply caused a significant fall in coffee prices and enabled a cheap production for majority of large coffee companies (Alvarez, Pilbeam and Wilding, 2010; Hamann et al., 2014). However, it consequently brought a crisis to coffee producers, namely to small farmers from developing countries with low wages (Alvarez, Pilbeam and Wilding, 2010; Hamann et al., 2014). However, this drew the attention of mainly western consumers who started to care more and have become more aware about the bad working conditions and exploitation of coffee farmers. Moreover, consumers also started to criticize more the techniques of coffee grow and production as they caused serious environmental damage and pollution (Hamann et al., 2014). Thus in order to stay competitive on the coffee market, companies were forced to implement sustainability principles into their businesses and come up with more responsible strategies and programmes (Hamann et al., 2014).

4.3.1 Nespresso programmes and initiatives

As it was already mentioned before, all over the years Nespresso stressed and based on its brand image of a luxurious company providing high quality products (Alvarez, Pilbeam and Wilding, 2010; Nespresso, 2016). However, Nespresso wants to be also recognized as an ecological and responsible company at the same time. The separation from the Nestlé's coffee purchasing operations in 2002 enabled Nespresso to create its own supply chain which gave it not only more control over the supply of green coffee, but over the relationships with coffee suppliers and producers as well, thus the firm could focus more on sustainability (Alvarez, Pilbeam and Wilding, 2010). Nespresso (2014) states that as a company "we are involved in every aspect of the coffee value chain from the coffee tree to the coffee cup. This gives us a unique perspective as well as an ability to effect change and drive sustainability."

In year 2003 Nespresso partnered with an international non-governmental organization called Rainforest Alliance (which promotes and certifies green agricultural products) in order to create Nespresso AAA Sustainable Quality Program (further referred only as AAA Program) (Alvarez, Pilbeam and Wilding, 2010; Hamman et al., 2014; Nespresso, 2014; Nespresso, 2016). Apart from the sustainable production of the highest quality coffee and protecting the natural environment, AAA Program is also focused on improving lives of coffee farmers and their communities (Hamman et al., 2014; Nespresso, 2016). Each A in the programme title refers to an area of its focus – quality, sustainability and production (Hamman et al., 2014; Nespresso, 2014). To obtain Nespresso AAA Program certification and become Nespresso supplier, thus get a premium price for the coffee, farmers have to meet firm's strict social and environmental standards – concretely 296 criteria (Nespresso, 2014). This work will pay more attention to AAA Program certification later in the subchapter related to certifications. Nevertheless, AAA Program also tries to help farmers to adopt the best social and environmental agricultural practices, such as soil and water conservation, wildlife protection, reforestation and integrated crop management, which which should lead to higher productivity and costs reduction, thus increased income (Nespresso, 2014). In order to do that, Nespresso works with its partners and the network of over 240 agronomists that provide technical assistance and trainings to coffee farmers (Nespresso, 2014). Hamman et al. (2014) in their work stress that thanks to AAA Program farmers database, Nespresso is able to trace every coffee bean to an individual farm and moreover, supervise it in terms of sustainable production.

Nespresso's AAA Program is the firm's cornerstone in its responsible sourcing approach (Nespresso, 2014). In 2009 it became a part of Nespresso Ecolaboration program which is focused on consolidation of all the firm's sustainability efforts across the value chain, especially in form of a reduction of the overall environmental impact of the firm's activities (Hamman et al., 2014; Nespresso, 2016). Apart from sustainable coffee sourcing represented by AAA Program, the area of interest of Ecolaboration is recycling of coffee capsules and the reduction of firm's carbon footprint emissions (Nespresso, 2014; Nespresso, 2016).

Coffee capsules for Nespresso coffee machines are not made from plastics as it is in the case of Nestlé Dolce Gusto capsules, but they are made from aluminium (Hamman et al., 2014; Nespresso, 2016). Hamman et al. (2014) in their work criticize Nespresso for its choice of capsules material as aluminium is very production intensive (it consumes lot of energy and produces lot of emissions) and hard to recycle, thus it has a considerable impact on the environment. Nespresso (2014) defends its choice by saying that aluminium is "the best material available today to protect the delicate Nespresso Grand Cru coffees against factors such as oxygen, light and humidity, which can compromise coffee freshness, taste and quality." Moreover, Nespresso also stresses aluminium's advantage of infinite recycling capacity as it can be reused without loss of its quality. Apart from that, aluminium's advantage also lies in its lightweight which enables transport and environmental savings (Nespresso, 2014). Hamman et al. (2014, p. 34) accept these justifications, but claims following: "If Nespresso is serious about 'perfecting of the packaging solution,' as it claims, reduction of aluminium as raw material should be immediately applied or should be completely replaced by a more ecological system of packaging." The authors see the true motive behind the fact that Nespresso is continuously holding to its aluminium capsules in brand-image reasons (Hamman et al., 2014). Furthermore, the authors still see the effective recycling system of the aluminium capsules as the main challenge for Nespresso as it is very much dependent on consumers' behavior related to cultural differences (Hamman et al., 2014). Nespresso (2014) provides to consumers following recycling options:

- collection points in Nespresso boutiques;
- collection points at community waste recycling centres;
- doorstep collection of used capsules when new capsules are delivered, through the Nespresso Recycling@home initiative;
- collection points at Nespresso retail partner stores, and in pick-up points.

Hamman et al. (2014) argue that Nespresso boutiques are usually present only in large cities and usually in number of one store per city which is not very convenient for consumers. Moreover, public recycling options provided by local municipalities vary widely from country to country, even within European Union (Hamman et al., 2014). Only in the case of Germany, Sweden and Finland, there exist national packaging recycling schemes in form of the european Green Dot program (Nespresso, 2014). However, Nespresso is aware about differences in providing public recycling by countries as well as it knows that coffee capsules recycling depends on consumer participation, thus the company admits that it is difficult for it to solve the recycling problem (Nespresso, 2014). Therefore Nespresso tries to work with its partners around the world in developing and improving its collection solutions, which would be tailored to the local resources and infrastructures (Nespresso, 2014).

Apart from that, Hamman et al. (2014) also suggest to Nespresso to apply some payback programme through which Nespresso would provide some extra bonuses, or even give some money back, to the consumers who return the capsules in order to motivate them to recycle. Similar incentive has already happened in France in 2014 under the three-year programme called "Projet Metal" (Nespresso, 2014). During this programme, Nespresso has supported the recycling of its aluminium coffee capsules within the French national packaging recovery system by paying cash incentives for every tonne sorted (Nespresso, 2014). Needless to say that Nespresso would definitely need more initiatives like this one which took place in France.

Since 2009 Nespresso has been using life cycle assessment as a long-term approach for measuring and reporting its environmental impact (Nespresso, 2014). According to Nespresso, the largest environmental impacts found out in a study performed by third-party experts group called Quantis come from using the coffee machines, growing the coffee beans and packaging (Nespresso, 2014). In 2011, the same group of experts conducted for Nespresso another study related to the environmental impacts of using different kinds of capsules (Nespresso, 2014). The study revealed that in the long-term horizon the Nespresso choice of aluminium capsules and its recycling system is the option with the lowest overall environmental impact (Nespresso, 2014). However, none of these studies is to be found available online, thus outcomes from both are questionable.

In relation to a reduction of its overall firm's carbon footprint, Nespresso has been equipping all its new coffee machines with an automatic standby or power-off mode since 2009. This has led to a 70% reduction in carbon footprint during the coffee machine use (Nespresso, 2014). Furthermore, the company also focuses on transport optimization. Nespresso (2014) claims that due to transport optimization it was able to cut the annual carbon emissions in Switzerland, England, Germany, the Netherlands and Norway by 35-40%. Moreover, since 2012 the firm has been using for its deliveries to Sweden and Denmark as transport means only railways (Nespresso, 2014). In relation to its production centres, Nespresso applied advanced coffee roasting techniques in its factory in Avenches which enabled it to save approximately 16%-20% of the energy compared to old roasting techniques (Nespresso, 2014). Apart from that, in the factory in Avenches 95% of waste is revalorized through recycling and remaining 5% is used for heating (Nespresso, 2014). Also rainwater is collected, recycled, and used as utility water in the factory there (Nespresso, 2014).

Back in 2009 when Nespresso launched its Ecolaboration programme, the targets were following: to achieve 80% in sourcing coffee from the Nespresso AAA Sustainable Quality Program, to achieve the capacity to recycle 75% of coffee capsules and reduce the carbon footprint from a cup by 20% (Nespresso, 2014). Currently, according to the information on Nespresso websites, 84% of Nespresso coffee comes from more than 70,000 farmers from 12 countries who are part of the AAA Program. Apart from that, Nespresso established 100,000 capsules collection points worldwide and its capsules recycling capacity is over 86% at the end of year 2015 – against 25% recycling capacity back in 2009 (Nespresso, 2016). Moreover, at the end of 2013 Nespresso achieved a reduction in the carbon footprint from a cup by 20.7% (Nespresso, 2014). However, Hamman et al. (2014) in their work point out the fact that Nespresso has no real data to support its statements. The authors especially stress out Nespresso recycling capacity which is only theoretical number and does not reflect reality (Hamman et al., 2014).

Nevertheless, in 2014 Nespresso came up with The Positive Cup sustainability strategy which continues and is based upon Ecolaboration. The objectives which Nespresso wants to achieve by year 2020 are following: 100% sustainably sourced coffee, 100% sustainably managed aluminium, 100% carbon efficient operations (Nespresso, 2014; Nespresso, 2016). For a target of 100% sustainably managed aluminium Nespresso wants its capsules to be sustainably sourced in compliance with the new Aluminium Stewardship Initiative (ASI)

standard developed by the Union for Conservation of Nature (Nespresso, 2014). Apart from that, Nespresso also targets for 100% recycling capacity of its coffee capsules by 2020 through its collection points and pick-up collection services (Nespresso, 2014). Additionally, by 2020 Nespresso also plans within a partnership with Rainforest Alliance and Pur Projet to plant 10 million trees in and around the AAA coffee farms which should help to restore natural habitats, regulate water availability, improve soil quality and increase the capacity of coffee farming areas (Nespresso, 2014). With this initiative, Nespresso believes that the firm will become 100% carbon neutral. All these targets and goals are very challenging and it will require a lot of effort to achieve them. Especially goal of 100% capsules recycling capacity may be impossible as Hamman et al. (2014) believe. The authors further stress that switching to alternative capsules material may appear as the only sustainable solution in a long term (Hamman et al., 2014).

In conclusion, the Ecolaboration programme was presented as mainly focused on the reduction of the firm's overall environmental impact (Hamman et al., 2014; Nespresso, 2016). Moreover, this programme relates to all Nespresso sustainability activities across the value chain. Thus, at different value chain levels, the firm tries to incorporate sustainability principles by different means. As it was already mentioned, within Ecolaboration programme Nespresso is in particular focused on the reduction of overall firm's carbon footprint. In order to do that, the company is designing and inventing new coffee machines with lower energy consumption. On a production level the company focuses on lowering the impact from the aluminium which uses as capsule material and it also implements new energy saving techniques in its factories as well as it pays attention to transport optimization (Nespresso, 2014; Nespresso, 2016). Apart from that, Ecolaboration program also concentrates on the post-consumption phase, namely recycling of coffee capsules, and at supplier and production level it is focused on responsible coffee sourcing represented by Nespresso AAA Program and certification.

4.3.2 Starbucks programmes and initiatives

As it was already mentioned, Starbucks focuses on three main areas related to sustainability. One of them is community involvement where Starbucks tries to support local communities in the areas where its stores are located (Starbucks, 2016). The firm encourages not only its

employees, but also the consumers in voluntary community services (Starbucks, 2015). Apart from that the company also supports communities of farmers and workers in the areas of coffee production by establishing farmer support centers. In 2008 Starbucks operated only one farmer support center where diverse experts worked with farming communities in order to promote best practices in coffee production which should improve both coffee quality and yields (Starbucks, 2015). Since then Starbucks increased the number of its centers to 7 which now can be found in Latin America, Asia and Africa (Starbucks, 2015).

Furthermore, Starbucks puts great emphasis on ethical sourcing in order to enhance farmers and workers labor conditions as well as sustainable production of coffee beans (Starbucks, 2016; Hamann et al., 2014). Starbucks (2016) even states that it is the firm's goal to have the highest quality coffee produced by using ethical sourcing practices which includes not only purchasing practices, but supporting farmer loans and forest conservation programs as well. Ethical sourcing and sustainable environmental practices in coffee production are promoted and realized by Starbucks programme called C.A.F.E. (Coffee and Farmer Equity) Practices to which the separate subchapter will be given later.

The third area related to sustainability and on which Starbucks is concentrated through its activities is natural environment. Starbucks carries out environmental stewardship which is basically a form of product stewardship about which this work talked earlier in theoretical part related to various approaches and practices to applying environmental sustainability. In relation to environmental stewardship, Starbucks concentrates mainly on a reduction of the firm's environmental footprint such as energy and water conservation, waste reduction and recycling.

Following the example of Nespresso, in 2012 Starbucks introduced its own capsule coffee machine called Verismo (Hamann et al., 2014). Contrary to Nespresso, the capsules for Starbucks Verismo are made from plastics, not aluminium, thus they are more easily recyclable. However, as it is pointed by Hamann et al. (2014), Starbucks provides no collection system, neither in its stores nor elsewhere. The firm completely relies on local public recycling systems together with consumer behavior and willingness to recycle. Hamann et al. (2014) in their work also stress other sustainability problem of Starbucks which is packaging waste together with food and coffee waste produced in its stores. The stores produce a huge amounts of packaging waste in form of various boxes, coffee packages,

cartons, especially milk ones, syrup bottles, etc. (Hamann et al., 2014). As Hamann et al. (2014) note, Starbucks is aware and even admits that effective recycling still remains a big challenge for the company. However, the authors provide no concrete options how the firm should face the recycling and waste problem.

Few years ago, in 2010, Starbucks in Japan faced a problem in reducing the food waste in its local stores. According to the new governmental law applying to restaurant industry food waste should be recycled at least from 50%. This outside pressure caused that Starbucks local management had to come up with an innovative solution for this problem. Consequently, the firm teamed up with a contact lens company and they together developed a technique how to transform the ground coffee waste into cattle feed and crop fertilizer. For this initiative and its contribution to the sustainable development of Japan's food industry, Starbucks later received an award from the Japanese Minister of Agriculture, Forestry and Fisheries. Apart from that, Starbucks also came up with an idea how to incorporate coffee ground waste into trays, table boards, tiles and wall materials in its newly-opened stores (Starbucks, 2016).

Starbucks also engage itself in green construction activities which are mainly represented by a retail programme concerning LEED (Leadership in Energy and Environmental Design) certification established by the U.S. Green Building Council (Starbucks, 2016). Since 2005 when Starbucks opened its first LEED-certified store in Oregon, US, this programme has brought more sustainable building standards to its stores, namely in form of energy and water conservation and savings, usage of renewable energy, recycling and waste reduction (Starbucks, 2016). Today Starbucks operates over 1,000 LEED-certified stores in 20 countries, which is more than any other retailer in the world (Starbucks, 2016). It is also worth to mention that in 2008 Starbucks decided to use LEED certification for its all new company-operated stores. In order to do that, the company decided to reuse four of its old coffee shipping containers which were at the end of their life-cycle. The company renewed and refurnished them, thus an entirely new reclamation drive-thru store was built. One of the main advantages of the store built like that is also its ability of easy disassembling and transportation to a new place (Starbucks, 2016).

In year 2008, similarly to Nespresso, Starbucks set a number of goals related to sustainability as well which the firm had in mind to complete by the end of 2015. As it was already mentioned, the sustainability areas on which Starbucks is focused are ethical sourcing,

environment and community. In relation to ethical sourcing, the company's goal was to have 100% of its coffee from ethical sources by 2015 through C.A.F.E. Practices, Fair Trade or other externally audited system. According to the data from the latest available Starbucks' Global responsibility report from 2015, the company ethically sourced 99% of its coffee. Despite the fact that Starbucks did not achieve this goal, its achievement in number of 99% is still worth appreciation especially when considering that Starbucks is purchasing larger amounts of coffee by every year. Apart from that, the company also set goal in number of investments in alternative loan programs in order to support coffee farmers. The goal was to invest $20 million by 2015 which was surpassed by $1.3 million (Starbucks, 2015). It is noteworthy, that in the year of setting this goal, 2008, the investments counted hardly a half, $12.5 million. By these investments, Starbucks improved livelihood of many farmers as they could use the money for instance for buying new coffee trees, which consequently ensures that the yields of the crops will not decline (Starbucks, 2015).

In relation to the environment, as it was already mentioned, the biggest challenge lied and still lies in recycling. The goal was to have in front of every company-operated store recycling facilities by 2015 (Starbucks, 2015). But by the end of 2015, the target was met only by 59% (Starbucks, 2015). As Starbucks states on its websites (Starbucks, 2016), the ability to recycle coffee cups and other waste is dependent upon multiple factors. Perhaps the largest one, as it was in case of Nespresso, is consumers' recycling behavior and recycling conditions which differ from country to country. In present Starbucks operates in 70 countries and not everywhere conditions for recycling are optimal. In many cities, there are municipal barriers and in many of the firm's stores it is the landlords who control the waste collection and decide whether they provide recycling facilities or not. However, Starbucks tries to encourage its customers to bring their own tumblers in order to reduce waste and environmental impact from single-use coffee cups by offering them a price discount on their beverage. Thus a big challenge still lies in front of Starbucks in form of encouraging the consumers and its partners in effective recycling as well as securing the effective recycling systems.

In relation to reducing water and energy consumption, the goal was to achieve reduction by 25% in both which was accomplished by the end of 2015 (Starbucks, 2015). Apart from that, Starbucks set another goal in form of purchasing the electricity for its company-operated stores from 100% renewable energy sources which was also accomplished by the end of 2015

(Starbucks, 2015). In relation to community, the goal was to encourage its customers and employees in contributing by 1 million hours of voluntary community service per year. By far this goal was not achieved as the total amount of hours counted only 332,885 (Starbucks, 2015). Thus community is another area in which Starbucks should engage more.

In conclusion, this part of the empirical research presented three main areas of Starbucks focus – environmental stewardship, ethical sourcing and community involvement (Starbucks, 2016). Environmental stewardship is the area which encompasses Starbucks sustainability efforts in form of energy and water use reduction in its company-operated stores together with recycling of waste. Besides that, on a retail level Starbucks also uses LEED certification – which declares sustainable building standards – for its large buildings, flagship stores and from year 2008 for all new company-operated stores as well (Starbucks, 2016). As it was also already mentioned, Starbucks sustainable environmental practices in coffee production are promoted and realized through its C.A.F.E. Practices programme to which the more attention is paid in the next subchapter.

4.3.3 Starbucks C.A.F.E. Practices

Starbucks ethical sourcing and sustainability practices related to purchasing green coffee are embedded in its C.A.F.E. Practices programme as it was already mentioned earlier. According to Giovannucci and Ponte (2005), back in 2002 Starbucks was the first multinational company that developed its own supplier system for sustainable green coffee purchasing. When developing this programme, Starbucks used its market power and partnered with an environmental non-profit organization called Conservation International in order to not only ensure high-quality coffee for the long term, but to improve the livelihood of coffee farmers and protect the environment as well (Lee et al., 2007; Starbucks, 2016). Apart from that, this programme also has helped with the oversupply of low-grade coffee which caused a decrease in coffee prices, thus coffee crisis on the world market as it was mentioned before (Lee et al., 2007). Nowadays, through C.A.F.E. Practices Starbucks cooperates with more than 400,000 coffee farmers from 22 countries who receive above minimum wage (Conservation International, 2012). Apart from ensuring fair wages, the company also promotes access to health care and education, thus works on improving the wellbeing of farmers communities (Conservation International, 2012).

C.A.F.E. Practices is basically a set of coffee buying guidelines focused on the product quality, economic accountability and transparency, social responsibility and environmental leadership (Hamann et al., 2014; Starbucks, 2016). More specifically it tracks 249 indicators to assess the social and environmental performance of coffee production and its processing (Conservation International, 2012). One of the most important standards under this programme is that all farms, mills, and suppliers must document their hiring and employment practices together with illustrating equitable payments to those who work for them or sell to them (Lee et al., 2007). Measurement of C.A.F.E. Practices standards is provided, supervised and verified by independent third parties (Starbucks, 2016). Coffee farmers, mills and suppliers are evaluated against those 249 above mentioned criteria and according to how much they comply with them, Starbucks pays them the premium price (Lee et al., 2007; Conservation International, 2012).

Implementation of C.A.F.E. Practices has brought to Starbucks a lot of various benefits. From a marketing point of view, it has strengthened its reputation as a socially responsible company and helped to justify its premium prices which Starbucks charges for its products (Lee et al., 2007). Apart from that, this programme has also improved firm's reputation among the suppliers and made the entrance to new markets easier. From a supplier side, it has also enabled Starbucks to make a partnership with strategic and high quality suppliers. Moreover, by demanding documented high-quality products Starbucks has increased visibility of its supply chain. Increased visibility has consequently enabled to Starbucks to better predict supply shortages as well. All this in the overall has increased the firm's competitive advantage (Lee et al., 2007). As it is summarized by Lee et al. (2007, p. 400): ”The program strengthened Starbucks' supply base, improved their marketing ability, and increased their visibility into the supply chain. Therefore, the benefits of the C.A.F.E. Practices initiative extended all the way through the supply chain, from the farm to the end consumer.”

4.4 The importance of coffee certifications

As some of the benefits and achievements of both Nespresso and Starbucks programmes have already been mentioned before, now the work will turn its focus to the issues related to the certifications as they are mainly stressed by Giovannucci and Ponte (2005). Both Nespresso

and Starbucks sustainable and ethical sourcing programmes are based on the firms private certifications. Coffee certifications usually imply social and ecological standards related to coffee production practices, environment protection, farmers working conditions and minimum wage, product quality and safety, and product traceability (Bacon, 2010; Conservation International, 2012; Nespresso, 2014). Originally coffee certifications were developed by farmers organizations and non-profit organizations among which probably the best known are certifications such as "Fair Trade", "Bird Friendly", "Rainforest Alliance" and "Utz Kapeh" (Giovannucci and Ponte, 2005). Only recently coffee companies have started to come up with its own private certifications (Giovannucci and Ponte, 2005). These certifications are usually verified by independent third parties separated from other firms within the value chain (Bacon, 2010).

In most of the coffee producing countries the sustainable coffee standards are imported, in other words there are no national standards and if they are, they are not harmonized with third party standards and certifications (Giovannucci and Ponte, 2005). Thus this leads to disorientation and leaves majority of firms to comply with their own standards. Apart from that, one of the serious coffee certifications problems relates to the verification systems. According to Giovannucci and Ponte (2005), the problem lies in regular inspections, meaning controlling and reviewing of the certified operations, as well as their accountability and transparency. In case of private firms certifications the verification is even more difficult due to less transparency for external observers (Giovannucci and Ponte, 2005).

However, as the main issue of coffee certifications may seem to be farmers obligation to comply with the standards as they once become the purchasing criterion (Giovannucci and Ponte, 2005). At the first sight, it may appear that standards compliance is only beneficial for coffee farmers and producers, but Giovannucci and Ponte (2005) suggest that it can easily turn into burden. It is not rare that farmers have to make extra investments in order to meet the strict criteria and gain the certification which can cause serious problems if the expected received bonuses do not materialize in the short-term (Giovannucci and Ponte, 2005). Moreover, if farmers switch from using of chemical to organic fertilizers, the yields of crops are usually lower, thus they are forced to buy more land in order to maintain profitability (Giovannucci and Ponte, 2005; Van der Vossen, 2005). Furthermore, Ruben and Fort (2011) in their work mention several studies which revealed that farmers following Fair Trade standards in Mexico and Nicaragua achieved only slightly better yields in comparison to their

old manners of production. Thus the farmers income did not increase very much and despite their compliance with Fair Trade, many of them remained in poverty (Ruben and Fort, 2011). Giovannucci and Ponte (2005) also point out to the fact that many of the certifications provide no particular guarantee that the price premiums reach the coffee farmers. Besides, there is always a risk that these criteria will become widely accepted standards, therefore purchasing companies will no longer be willing to pay extra price to the coffee farmers and producers (Giovannucci and Ponte, 2005).

However, as it was already mentioned before, Nespresso through its AAA Program provides coffee farmers a support from number of experts in order to help them face the yield challenge, moreover it helps them to reduce costs and improve productivity (Nespresso, 2014). Particularly in case of Colombian coffee farmers, as it was mentioned before, Nespresso found out that farms which complied with its AAA Program criteria, thus Nespresso sourced from them, demonstrated 22.6% better social conditions, 41% better economic conditions and 52% better environmental conditions than regular farms (Nespresso, 2014). Apart from that, according to data provided by Nespresso (2014), Nespresso pays to coffee farmers and producers that meet their AAA Program criteria "price premiums of 30%-40% above the market price, representing 10-15% above the price of coffees of similar quality." Nespresso AAA Program also includes Rainforest Alliance certifications whose standards are quite strict as only 30% of each harvest from farms that the firm works with meets these standards (Nespresso, 2014). However, Nespresso (2014) states that the coffee farmers who within its AAA Program do not obtain Rainforest Alliance certification still can sell the rest of their harvest for a premium price to the wider sustainable coffee market. Therefore the firm believes that its AAA Program brings benefits not only to coffee farmers and producers, but to the wider coffee industry as well (Nespresso, 2014). Moreover, it seems that farmers that supply coffee for Nespresso do not have to face poverty or worry about their wellbeing as suggested by Giovannucci and Ponte (2005). It may even be assumed that Nespresso AAA Program truly helps them. Furthermore, coffee studies reviewed in work of Ruben and Fort (2011) confirm that particularly Fair Trade standards positively affect quality of life of coffee farmers and their families, especially thanks to external funds, provided training and improved product management. Unfortunately, no more information about premium price and Starbucks C.A.F.E. criteria was found than those already mentioned in a previous subchapter.

Despite the many benefits of coffee certifications and especially Nespresso AAA Program mentioned here, Giovannucci and Ponte (2005) point out to the possibility that all these private companies certifications and efforts can be developed only in order to suit their business needs. The authors further stress that majority of the private certifications and standards is only an adjusted, simpler version of already existing sustainability standards. Therefore, Giovannucci and Ponte (2005) state that these private certifications can be classify as only a little better than misleading marketing tricks.

5. Discussion

Both coffee companies selected for empirical research, Nespresso and Starbucks, present themselves as focused on delivering the highest quality coffee as well as they present themselves as responsible companies caring for the natural environment and social communities. In past years the both firms set to themselves several sustainability related goals which I would like to review first in order to answer the research questions later in this section.

When launching its Ecolaboration programme in 2009, Nespresso set the goal to achieve 80% in sourcing coffee from the Nespresso AAA Sustainable Quality Program by the end of 2013 (Nespresso, 2014). This goal was met as the firm achieved 84% in sustainable coffee sourcing. Despite the fact that nowhere in the *Nespresso Ecolaboration full-term report 2009-2013* is explicitly stated how exactly Nespresso achieved this goal, it can be assumed that it was due to technical assistance and trainings which in collaboration with various agronomists and experts Nespresso provided for free to coffee farmers. This made it easier for farmers to obtain the AAA Program certification and therefore it could help Nespresso to enlarge its supplier base. The next goal was to achieve the capacity to recycle 75% of coffee machine capsules which was even surpassed by 11% at the end of 2013 (Nespresso, 2014). This goal was achieved by continuous improvement of the firm's capsules collection services together with the enlargement of its network of collection points (Nespresso, 2014). The last goal of Nespresso Ecolaboration programme was the reduction of the carbon footprint from a capsule cup by 20% which was achieved as well. It can be stated that this target was met mainly due to the firm's active membership work within Aluminium Stewardship Initiative which is focused on driving environmental and social sustainability across the entire aluminium value chain (Nespresso, 2014; Nespresso, 2016).

On the other side, Starbucks set its sustainability related goals in 7 years horizon back in year 2008 (Starbucks, 2015). By 2015 Starbucks achieved 99% in ethical sourcing its coffee through continuous improvement of its C.A.F.E. Practices standards and other sourcing practices. Thus the original goal in form of 100% may be considered as nearly achieved. Starbucks next goal was to invest $20 million in farmer loans by 2015 which was surpassed by $1.3 million (Starbucks, 2015). Other goal was related to waste recycling as the firm believed that it would have recycling facilities in front of each company-operated stores.

Despite many efforts such as developing a highly flexible recycling program and the firm's work with landlords, haulers and municipalities, this goal was not met as Starbucks achieved only 59% (Starbucks, 2015). Apart from that, Starbucks also committed itself to reduce energy consumption in its company-operated stores by 25% which was not achieved either. Despite the changes in the size and mix of its business, Starbucks was able to achieve the reduction only by 4.3% (Starbucks, 2015). Nevertheless, the firm was successful in achieving its goal of a reduction of water consumption by 25% in its company-operated stores by 2015 when it retrofitted plumbing, water systems and enhanced new store design (Starbucks, 2015). On the other hand, Starbucks failed in meeting its goal of serving 5% of beverages made in its stores in personal tumblers by 2015 as it achieved only 1.6% (Starbucks, 2015). As the last goal Starbucks committed itself to build all new company-owned stores to achieve LEED certification. This target was not met either as only 74% of new built stores achieved this certification. Starbucks (2015) comments that followingly: "We have learned that the U.S.-based LEED certification program is still gaining traction in some international markets, and that regional conditions are sometimes in conflict with green building standards." In order to be more successful in achieving its goal related to sustainable building, Starbucks is "pioneering an expanded set of global green building principles that are locally adaptable," (Starbucks, 2015).

Apart from the reminding of the goals and achievements of both selected companies, this section also provided the explanation of how these goals were achieved, thereby the part "how" of the main research question was answered, although several activities of the firms were noted as not entirely successful. For the remainder, the main research question was following: How can food companies manage effectively environmental sustainability through their activities across the value chain? From what it was presented in the paragraphs above, it can be concluded that through some activities the companies manage environmental sustainability effectively as they have completed some of their goals.

The other two research questions of this work were following: How do the environmental activities of food firms affect local communities on different value chain levels? And what direct positive effects do these activities have? As it was mentioned earlier, Starbucks is involved in improving the life of communities where it operates its retail stores as it engages not only its employees, but also customers in voluntary community services (Starbucks, 2015). However, it was not found out what the concrete community services are and what

their relations to the environment are. If it is about for instance cleaning the streets or giving away free food to homeless people. Therefore this cannot be considered as the answer to the research questions.

Nevertheless, in the empirical research part, this work presented Nespresso AAA Program and Starbucks C.A.F.E. Practices which are both focused on sourcing the highest quality coffee in both environmentally and socially sustainable way. Thus these programmes target on improving livelihoods of coffee farmers and their communities, meaning improving welfare on supplier level (Lee et al., 2007; Hamman et al., 2014; Nespresso, 2016; Starbucks, 2016). As it was already mentioned, Nespresso provides technical assistance and trainings to coffee farmers through the network of agronomists and other experts (Nespresso, 2014). They help farmers to adopt the best social and environmental agricultural practices possible, which usually leads to increased income of farmers, thus consequently to the improvement of their livelihoods. Similarly to Nespresso, Starbucks through its C.A.F.E. Practices also provides help to coffee farmers with the coffee production, namely in form of 7 farmer support centers. Besides that, as it was mentioned earlier, Starbucks also promotes access to health care and education in coffee farmers communities as well as it provides loans to coffee farmers (Conservation International, 2012; Starbucks, 2015). Thus sustainable coffee sourcing programmes of both firms positively affect and improve livelihoods of communities, but only on producer and supplier levels.

By being a supplier for Nespresso or Starbucks and complying with the certification standards, coffee farmers get numerous benefits as it was already mentioned above. However, probably the most significant benefit lies in form of higher payments than from the standard coffee production. Despite the fact that both Nespresso and Starbucks sustainable programmes are beneficial for coffee farmers, meeting their strict standards in order to get a certification can be also problematic as it was outlined in the empirical research part related to certifications. Farmers can face the challenges in form of making extra investments in order to get the certifications which can lead to serious financial problems if these investments do not valorize monetarily in the short-term (Giovannucci and Ponte, 2005). As it was pointed out by Van der Vossen (2005), organic coffee production also usually causes lower yields of farms, thus farmers are forced to buy more land in order to maintain profitability which can lead to financial problems as well. Although, both Nespresso and Starbucks try to prevent these issues by providing cost-free help from their experts together

with investment in form of farmers loans (only in case of Starbucks), it cannot be said with 100% guarantee that these firms efforts are successful – especially due to the fact that this work lacks necessary data to confirm that. Only data from Nespresso case of Colombian coffee farmers were presented here earlier as they were the only ones available. Thus it was found out that Colombian coffee farmers who complied with Nespresso AAA Program criteria scored 22.6% better social conditions, 41% better economic conditions and 52% better environmental conditions than other Colombian farmers (Nespresso, 2014). Moreover, as it was already stated and mentioned by Hamman et al. (2014), we cannot be sure that the provided data reflect reality. Apart from that, as it was mentioned in the work of Giovannucci and Ponte (2005), there is also the issue that coffee certifications can easily become a standard across the entire coffee industry. Therefore there is a prevailing risk that firms will not buy from farmers without certifications and what is more, that certifications become so common that purchasing coffee firms will deny paying coffee farmers the premium price (Giovannucci and Ponte, 2005).

6. Conclusion

In this work the main focus was on food companies and how they can effectively manage environmental sustainability through the activities across the value chain. Therefore it was considered as necessary to first present the concept of sustainability together with value chain concept in order to illustrate their perception in the academic literature. It was found out that despite the fact that concrete definitions of sustainability across the academic literature vary, a lot of authors base their understandings of sustainability and sustainable development on the same definition from so called "Brundtland report" (de Ron, 1997; Schröder, Holbach and Müller-Kirschbaum, 2015; Hart, Milstein and Caggiano, 2003; Graedel and Klee, 2002; Sutton, 2004; Porter and Kramer, 2006; D'heur, 2015; Moldan, Janouskova and Hak, 2011; Goodland, 1995; Dao, Langella and Carbo, 2011; Morelli, 2011; Kruse et al., 2009; Littig and Grießler, 2005; Reinhardt, 2000; Carew and Mitchell, 2008; Isaksson and Steimle, 2009; Lee, 2009; Glavic and Lukman, 2007). The definition which first appeared in Brundtland report, officially named *Our Common Future* published by the World Commission on Environment and Development in 1987, is following: "Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs," (Drexhage and Murphy, 2010). Apart from that, this work also stressed the mutual interdependence of three sustainability dimensions – environmental, economic and social sustainability – as sustainability in one dimension is necessary for sustainability in another (Goodland, 1995; Sutton, 2004; Moldan, Janouskova and Hak, 2011; Boström, 2012).

In the literature review section, various approaches and practices to applying the environmental sustainability were presented first in order to at least partially answer the main research question. That is because the presented approaches and practices do not embody their effectiveness as well as they are more general, not related to solely food industry. However, in the main part of literature review which was focused on reviewing the articles which used life cycle analysis as a methodology for conducting studies within food industry, it was observed that reviewed articles relate the largest environmental impact mainly to the agricultural production, packaging and processing stage. Apart from that, transportation together with product's consumption and disposal phase were identified as having significant impact as well. These studies also suggested various approaches and practices how firms can lower their environmental impact and greener their practices.

For the empirical research as a method was chosen a case study of two large international coffee companies – Nespresso and Starbucks. Nespresso presents itself as a luxurious company focused on delivering the highest quality coffee tasting experience with its main product being capsules coffee machine system (Nespresso, 2016). Whereas Starbucks is a specialty coffee roaster and retailer that strives for offering the best coffee possible as well. Similarly to Nespresso, Starbucks also sells its own capsules coffee machine system called Verismo (Starbucks, 2016). Apart from that, both firms present themselves as responsible companies caring for the natural environment and social communities. In the case of Nespresso, the empirical research revealed that packaging truly belongs to the stages with the largest environmental impact as it was outlined in the literature review (Nespresso, 2014). As other stages with the significant impact for the environment were identified using the coffee machines and growing the coffee which confirms the outcomes of the studies in the literature review mentioning the agricultural production. However, during the empirical research in case of Starbucks, there was found no data or evidence about which firm's activities have the largest environmental impact.

Apart from that, empirical research presented both Nespresso and Starbucks programmes related to sustainability – Nespresso AAA Sustainable Quality Program and C.A.F.E. Practices. Thus in order to answer the main research question these both sustainability programmes and firms concrete activities were presented alongside with their achievements. For the remainder, the main research question was following: How can food companies manage effectively environmental sustainability through their activities across the value chain? Within the main research question, there is a part referring to effective managing. This "manage effectively" part imposed a question of how environmental sustainability can be managed effectively. But how can we say that something was effective? In order to face this issue, it was assumed that when something is supposed to be considered as effective, there must be a measurable progress on a given object within the defined time scope. Therefore as the empirical research presented the both firms goals set within their programmes, it was found out that in many cases both firms met their goals. For this reason, it can be assumed that both Nespresso and Starbucks do manage effectively environmental sustainability through their activities. However, as it was already pointed out by Hamann et al. (2014), we cannot be sure to what extent the data related to the achievements of both Nespresso and Starbucks reflect the reality.

This work also asked the questions of how the environmental activities of food firms affect local communities on different value chain levels and what direct positive effects these activities have. The main outcome from empirical research is that both Nespresso and Starbucks sustainability related programmes are concerned not only with environmental, but also social dimension of sustainability as these programmes target on improving lives of coffee farmers and their communities. Apart from paying the premium price, both companies also provide technical assistance and help coffee farmers in adopting the environmentally sustainable agricultural practices which leads to the improvement of their livelihoods. However, this finding relates only to supplier and producer level of value chain. No more positive effects on other levels were found out.

Besides that, the empirical research also revealed that as the most challenging sustainability related activity for both firms can be considered recycling. In case of Nespresso, it is recycling of coffee capsules and for Starbucks it is recycling of waste produced within its stores. The empirical research revealed that recycling is a challenge for both companies as it is mainly dependent on consumers' customs and their recycling behavior as well as it depends on landlords and local recycling systems. Therefore both Nespresso and Starbucks should encourage its customers in effective recycling as well as they should try to secure effective recycling systems.

In case of Starbucks, the empirical research presented the firm's recycling initiative in Japan as Starbucks came up with a technique how to reduce its food waste. The firm developed a technique which transformed the ground coffee waste into cattle feed and crop fertilizer. Moreover, Starbucks also came up with an idea how to incorporate coffee ground waste into trays, table boards, tiles and wall materials in its newly-opened stores (Starbucks, 2016). However, Starbucks was made to come up with this initiative by external entity in form of Japanese government which imposed a new law on recycling food waste.

On the other hand, in case of Nespresso, it was observed that the main issue connected to recycling of coffee capsules lies within the used material. Aluminium from which the capsules are made off is not only hard to recycle, but it is production intensive as well. In their work authors Hamman et al. (2014) suggested to Nespresso to switch to alternative capsule material as it may appear to be the only sustainable solution in a long term. Nevertheless, the same authors questioned this ability of Nespresso to change its capsule

material as they believed that the firm is continuously holding to aluminium because of brand-image reasons (Hamman et al., 2014). Therefore it can be assumed that Nespresso will probably continue in sticking to the aluminium as capsule material as it already announced its target for year 2020 in form of 100% sustainably managed aluminium (Nespresso, 2014). At least it can be concluded that due to this target and compliance with Aluminium Stewardship Initiative (ASI) standards, Nespresso will try to lower the environmental impact of the aluminium as its capsule material.

In the beginning of this work, it was pointed out that Porter and Kramer (2011) sees sustainability efforts of companies on the periphery of their interests as in the center is firm's business. Also D'heur (2015) argues that firms care about sustainability only if it suits their business needs and can bring firms extra bonuses such as better reputation, more customers, etc. Moreover, Giovannucci and Ponte (2005) perceive private companies certifications and sustainability efforts as something a little bit better than marketing practices. These statements reflect the prevailed neoclassical view on the firms relations to sustainability within the academic literature as it was outlined by Stubbs and Cocklin (2008) in the beginning of the work. From the Nespresso reluctance to switch to another capsules material and Starbucks sustainability initiative in Japan which was imposed by local government (and has not been implemented in any other country), it could be assumed that the presumptions mentioned above can be applied to the case of Nespresso and Starbucks as well. However, following the ecological modernization approach and taking into consideration the findings from the empirical research of this work, it can be assumed that both Nespresso and Starbucks are firms that on one hand are focused on being profitable, but on the other hand they also behave responsibly as they are focused on improving the welfare of its stakeholders and on minimizing its environmental impacts at the same time.

6.1 Limitations and suggestions for future research

The main limitation can be probably viewed in limited time and scope of this work. Due to this limitation, it was not in the capacities of this work to focus in the empirical research on the entire food industry as it was originally mentioned. Thus the focus of the work had to be narrowed to conducting a case study on only two firms which operate within the same food sector – coffee industry. There might be also a limitation in form of a case study as chosen

method, because case studies are usually criticized for insufficient reliability or generality, thus overall validity of findings (Kuada, 2010). As another weakness of this work may be seen the inability to present the value chains of both selected companies, therefore inability to conduct possible value chain analysis. This was caused by lack of primary data which were obtained only from the companies websites and documents available online as the both companies refused to provide any other information. Therefore other limitations can be found in reflecting the environmental sustainability activities related to Starbucks company-operated stores only as there were no data related to the environmental performance and activities implemented in Starbucks licensed stores. Moreover, it was not found out as well if Starbucks is the only roaster of its coffee beans or if the firm also hires some external companies and what the environmental sustainability activities are there. Apart from that, there was found no data related to the firm's activities with the largest environmental impact. However, despite all these limitations, it is assumed that this work may serve as a basis for more comprehensive study of either coffee or food industry. For the future research it is suggested to conduct a research which would focus on food firms operating in different sectors of food industry, for instance fishery, milk industry or agriculture. It may be also beneficial to perform the value chain analysis and make a comparison of both environmental and social sustainability activities of the selected food firms.

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http://www.nestle-nespresso.com

http://www.starbucks.com

Appendix

Environmental sustainability

One of the probably most important articles about environmental sustainability is a work of Goodland (1995) called *The Concept of Environmental Sustainability*. He defines environmental sustainability as follows (Goodland, 1995, p. 3): “ES itself seeks to improve human welfare by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans.” Goodland (1995) focuses in his work not only on the capacities of natural resources, but also on sink capacities such as production outputs, wastes and emissions. He also presents another definition of environmental sustainability related to resources and sink capacities. He sees environmental sustainability as a set of constraints which regulates the economic system of humanity. The constraints include activities related to the use of renewable and non-renewable resources on the source side, and pollution and waste assimilation on the sink side. Goodland (1995) further stresses that despite the fact that these resources and sink capacities are large, they are also finite. That is why environmental sustainability needs not only maintaining and regeneration of natural resources, but sustainable production and sustainable consumption as well.

Social sustainability

It is hard to define what social sustainability is as many authors describes it by its goals and notions such as human well-being, social welfare, quality of life, social justice, social cohesion, cultural diversity, democratic rights, gender issues, workers’ rights (Boström, 2012). According to Littig and Grießler (2005), social sustainability reflects the relationships between nature and society as well as relationships within the society. The same authors (Littig and Grießler, 2005, p. 72) continue with following: “Social sustainability is given, if work within a society and the related institutional arrangements:

- satisfy an extended set of human needs;
- is shaped in a way that nature and its reproductive capabilities are preserved over a long period of time and the normative claims of social justice, human dignity and participation are fulfilled."

According to Boström (2012) social sustainability has one major disadvantage in contrast to environmental sustainability – it does not have such concrete objectives and it is more difficult to measure. He continues with that despite the fact that social sustainability aspects such as employment rates or income equality can be measured quite easily, the other issues such as quality of life, community well-being, and social recognition cannot. Moreover, social sustainability seems to be also more difficult to legitimize due to its subjective and often more politicized nature (Boström, 2012).

Goodland (1995) in his work mention the primary goal of sustainable development which should be overall improvement in human well-being, including the reduction of poverty, illiteracy, hunger, disease, and inequity. It is obvious that these goals are related to the social pillar of sustainable development. Goodland (1995) even suggests that although these goals are fundamental for humanity, they are quite different from the goals of environmental sustainability on the other hand. Thus this could be a major challenge of sustainable development.

Benefits of sustainability approach

Lot of articles also confirm the benefits of adopting sustainability principles. For instance, D'heur (2015) names the following ones: improved firm's reputation, increased revenues due to the willingness of customers to pay premium prices for sustainable products, better access to capital, better working conditions together lowered number of sick days by employees. Apart from that, implementing sustainability processes can also bring cost savings, which come especially from eco-efficiency during the production process, for instance materials savings thanks to more complete processing, substitution, reuse, or recycling of production inputs; more efficient resource use; better utilization of by-products; lower energy consumption during the production process; reduced material storage and handling costs (Hart and Milstein, 2003; Stubbs and Cocklin, 2008). Moreover, authors Ambec and Lanoie (2008, p. 56) claim that "better environmental performance is associated with better financial performance."

Lifecycle assessment

Across the academic literature related to environmental management and sustainability, probably the most used method is Life cycle assessment (further referred only as LCA). According to data presented by Notarnicola et al. (2012), there could be found over 4,500 papers on LCA methodology by 2010. LCA methodology has been identified as a key tool for an environmental sustainability analysis of products and technologies (Del Borghi et al., 2014; Andersson and Ohlsson, 1999b). In general, LCA is an internationally standardized analytical framework for holistic evaluation of the environmental and human health impacts of products and production systems throughout the product life cycle (Koroneos et al., 2005; Kruse et al., 2009; Notarnicola et al., 2012; Del Borghi et al., 2014; Wang et al., 2010). LCA is widely used especially for optimization of processes along the life cycle of the products and for minimization of the environmental impacts along the lifecycle (Del Borghi et al., 2014; Andersson and Ohlsson, 1999b). Apart from that, LCA can be also used for comparison of alternative products, alternative life cycles for a given product, or the relative importance of different life cycle steps (Andersson and Ohlsson, 1999b).

LCA method has even been incorporated into the ISO14040 environmental management system and usually consists of four interrelated stages: goal and scope definition, inventory analysis, impact assessment, and improvement assessment (Wang et al., 2010). Probably the most important stage is the life cycle inventory (LCI) analysis which gather all needed resources and all released emissions and put them under investigation and relates them to the defined functional unit (Wang et al., 2010; Andersson and Ohlsson, 1999b).