

Master of Science
Urban Environmental Management

Master Thesis

*Sustainability and Corporate Social Responsibility in agri-food
companies' strategies: A case study of dairy sector in Greece*

Anastasia Fouseki

Wageningen, 6 July 2015

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Abstract

The main objective of the thesis is to identify and illustrate sustainable and corporate social responsibility (CSR) actions/practices adopted by food companies operating in the dairy sector in Greece. The primary data collection method for small and micro companies is a preliminary field survey conducted by interviewing the responsible managers. Information regarding CSR and sustainability practices for large and multinational enterprises is gathered through their respective websites.

Remarkably, the lack of incentives and social cohesion does not prevent small and micro companies from maintaining an environmental and social behaviour. Comprehending the importance of being “green” and socially active, small companies manage and evolve their company's viability through communication, collaboration, and exchange of information with same size companies of the dairy sector. In addition, CSR and sustainability practices of large dairy companies are mainly focused on their commitments to society. Predominately, the branches of multinational companies in Greece are in accordance with the directives of the head office of the company worldwide but peculiarly their actions are limited in comparison with their respective branches abroad.

It is also found that the collective effort and cooperation among all actors (i.e. governments, companies, non-governmental organizations, society, and consumers) is required. Crucially, government interventions and incentives through programs, subsidies, and tax reduction play a key role in making companies shift towards sustainability. It is worth mentioning that sharing of knowledge, expertise, common practices and experience from larger to smaller companies could potentially have a positive impact on a more sustainable dairy sector. Communication of sustainability and CSR practices along the company and active involvement and participation of the employees in sustainable activities and corporate social responsibility actions will serve as a source for further development. Last, but not least, making consumers acquainted with the importance of sustainability will empower actions in a healthier and more sustainable dairy sector while company's reputation will get enhanced.

Keywords: Corporate Social Responsibility (CSR), sustainability, large, multinational enterprises, small and micro companies, Greek dairy sector

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1. Introduction

1.1. Motivation

Businesses face daily challenges related to people, society, environment, and economy (EPA, n.d.). Food safety, growth of population, people that cannot cover their basic needs, over consumption of natural resources without taking care about future generations, unfair trade, are some of the concerning issues. Through actions of corporate responsibility, businesses help to address these issues by having an active participation in the effort for a sustainable future (United Nations Global Compact, 2014).

Addressing these issues can be also succeeded by strengthening the social cohesion and by focusing on employee participation in social actions, social solidarity, without exclusion of vulnerable social groups such as people with disabilities, economic migrants, refugees, unemployed, collaboration between businesses for communication, cooperation and coordination of joint implementation projects or exchange practices, development of volunteering and environmental protection (Genier, Stamp, & Pfitzer, n.d.).

One of the difficulties faced by many companies is that there is an insignificant active cohesion into the society and the lack of incentives from the state to help companies make the transition to a more sustainable business. Although, economic crisis has increased social cohesion and the sources of information has raised awareness of all actors, it is required the strong cooperation of companies with other companies (sharing technology, knowledge, practices), shareholders, organisations, government, society, retailers, consumers in order a sustainable future earth to be built (Málovics, Csigéné, & Kraus, 2008).

1.2. Scope of the thesis

This study has tended to focus on Greek food companies that are working in the dairy sector to embody corporate social responsibility and sustainability in their strategies. The scope of this research is to identify and illustrate the main CSR practices adopted by food companies operating in the dairy sector in Greece, and analysing their CSR and sustainability strategies/actions. In addition, this study presents how Greek dairy companies organize their sustainability and CSR strategies/actions, and how they communicate these concepts. Last, but not least, another objective of this study is to

support food companies and especially small companies with actions to improve their strategies in a sustainable way.

1.3. Research Questions

The fundamental research questions guiding the study and literature review is the following:

- *How companies operating in the dairy sector organize sustainability and Corporate Social Responsibility (CSR) in their strategies?*

Aiming at creating a more comprehensive picture about the research topic, the following sub-questions are also reviewed to further guide the research process:

1. Are there specific sustainable strategies or specific actions that Greek dairy companies follow in order to deal with these issues?
2. Are these strategies the same for all the typologies of companies, or do they vary between Large and Small and Medium Enterprises (SMEs)?
3. What are the main communication and marketing strategies followed by these companies in order to inform consumers, citizens, and private investors about their sustainability and CSR initiatives?

1.4. Thesis Overview

The present thesis is structured in 8 chapters. The first chapter introduces the motivation, the scope, and the research objectives of this work.

Chapter 2 is dedicated to literature review of sustainability and corporate social responsibility concepts, the practices/actions that food companies implement being engaged with these issues and the dimensions of CSR. The role of actors and the role of communication are also examined in this chapter. The last part of this chapter presents a summary of the sustainability and CSR practices of large Greek companies and multinational enterprises globally and in Greece.

Chapter 3 analyses the dairy sector with focus on the dairy sector in Greece. In addition, to see the big picture information is given regarding the dairy sector in the EU and in the world as a whole. Detailed analysis of domestic milk production, market share, industries that operate in the sector and the cheese industry are also part of this chapter.

Chapter 4 presents the methodology followed, the reasons for selection of the particular research sample and the data analysis process that is followed.

Chapter 5 provides the analysis of the data retrieved from the interviewed companies in each of the examining issues of this research compared also with the literature review.

Chapter 6 summarizes the total results for each of the examining issues found from the interviews.

Chapter 7 contains the suggestions of this field study for further analysis.

Chapter 8 is the Appendix of the thesis and it contains the interview questions. In addition, it contains the total table of the large Greek companies that are active in the dairy sector.

2. Literature Review

2.1. Sustainable Development/Sustainability

One of the most popular topics in recent years is the topic of sustainable development (Málovics, Csigéné, & Kraus, 2008). A most typical definition is the Brundtland Commission in 1987 and it supports that: “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Circular Ecology, 2015). It contains within it two key concepts:

- the concept of **needs**, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- the idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs (IISD, 2013).

The definitions that interpret sustainability are many. For instance, the United States Environmental Protection Agency (EPA) defines sustainability as:

“Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. Sustainability is important to making sure that we have and will continue to have, the water, materials, and resources to protect human health and our environment” (EPA, n.d.).

Regarding sustainability it is required that economic, environmental and social factors are in a balance in order to have a sustainable world. An illustration of this concept is provided in the Venn diagram of figure 1. Only when the three pillars are together, full sustainability can be achieved. Otherwise three other different states exist as follows:

- *Social + Economic Sustainability = Equitable*
- *Social + Environmental Sustainability = Bearable*
- *Economic + Environmental Sustainability = Viable*

More specifically, it is also important to mention that the environmental sustainability can be achieved when natural resources are consumed at a sustainable rate. The

economic sustainability can be achieved when the resources that held by a business are used effectively in order to produce operating cost and the social sustainability is related to a good social well-being (Circular Ecology, 2015).

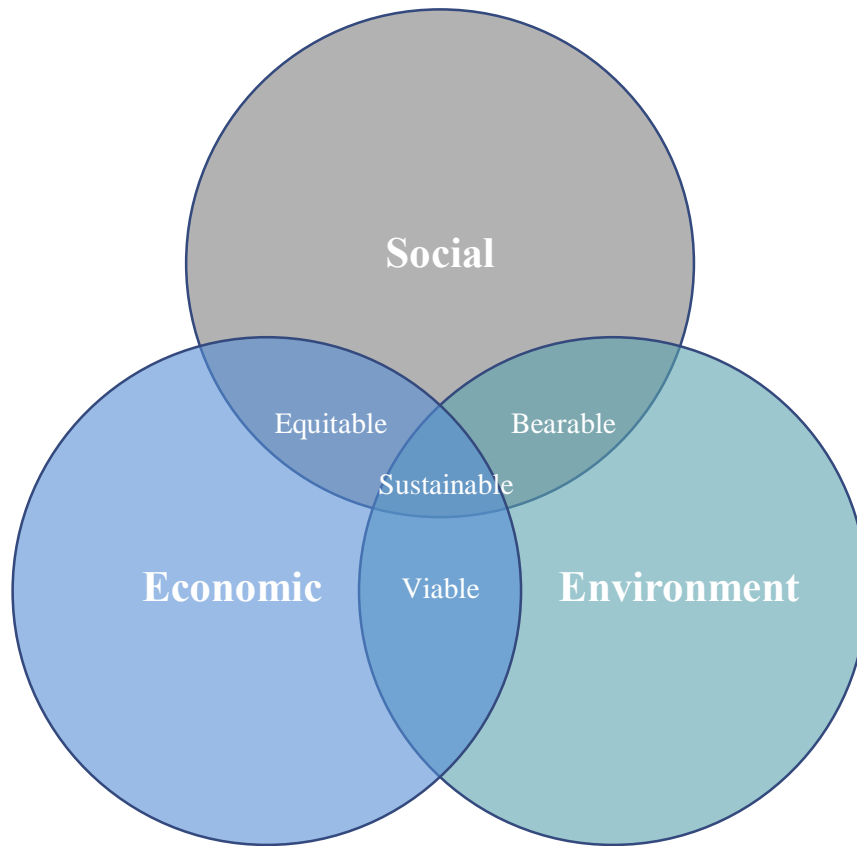


Fig. 1. Venn diagram of Sustainability (Circular Ecology, 2015)

However, there is a small difference between sustainability and sustainable development, which is supported by the quote that: “*Sustainable development is the pathway to sustainability*” (Circular Ecology, 2015). In addition, sustainable development can be divided into weak and strong sustainability. An example of strong sustainability is the concept of integrated chain management that includes criteria such as promotion and use of renewable energies in a balanced level (Málovics, Csigéné, & Kraus, 2008).

2.2 Companies and Sustainability

The rapid population growth, the rapid development of the economy and the rapid consumption of natural resources raise many concerns at the level of society, economy and environment respectively. Sustainability addresses these concerns on all of the three levels. In the past, industries aimed to have control of their pollution, obeying the

law. Afterwards, industries aimed to prevent the pollution with their actions. And nowadays the goal of the industries is the sustainability by applying knowledge and technology both for the protection of human health and the environment and promoting new green business practices (EPA, n.d.).

Although the initial creation of an ecological system will be costly, the gain from the reduced energy use, the reduced waste and carbon emissions will be large. Certainly due to the economic crisis, the industry has difficulties to invest in such exposures. However, companies can save money by making very small changes (Pickard, 2012). Some of these actions are the implementation of environmental management e.g. the standard program ISO 14001, employees' training about environmental awareness issues, energy saving (e.g. LED lighting, compressor units in order to be avoided leaks and new systems for engines' cooling) and water saving (water recycling). For instance, if the industry is not aware of environmental management issues, it would be more efficient to hire a knowledgeable manager or a team could be assembled in order to work all together, addressing these issues (IGD, 2012). According to the ministry of environment, food and rural affairs, if companies in Great Britain were making small changes effectively with utilizing their resources, then besides their contribution to the environment, they would save 23 billion annually. Examples of companies that have implemented a sustainable strategy with positive results are Marks & Spencer, Asda and Tesco (Pickard, 2012).

The changes made in the food sector can create a positive sense that the industry deals with the environment and society, but on the other hand do not promise a shift towards sustainable business strategies. Generally, the food industry is increasingly aiming at more sustainable solutions, coming face to face with today's challenges, utilizing its resources, enhancing its reputation, innovating by entering new markets and creating profit for the industry (Pickard, 2014).

The Institute of Grocery Distribution (IGD) supports that “*sustainability affects business resilience, reputation, finances and relationships*”. Thus, the analysis of companies (case studies) can contribute to understand the strategic importance of sustainability and the challenges that these companies face (IGD, Sustainability, n.d.). The importance of corporate sustainability is also supported by the United Nations Global Compact saying that: “*Corporate sustainability is imperative for business today – essential to long-term corporate success and for ensuring that markets deliver value*

across society” (United Nations Global Compact, 2014). According to them, companies that want to be sustainable should follow the presented below five features:

1. **Principled Business** is referred to the company’s alignment with the principles on human rights, labour, environment and anti-corruption. Hence, a company should show integrity and respect to the ten principles. These principles, as presented by the Global Compact, should be taken into account by the companies that want to deal with sustainability issue. The categories of principles are divided into human rights, labour, environment and anti-corruption, which are:

Human Rights	<ul style="list-style-type: none"> • Support and respect for internationally recognized human rights • Non-involvement in human rights abuses
Labour	<ul style="list-style-type: none"> • Respect on Freedom union/ right to collective bargaining • Elimination of forced labour • Prohibition of child labour • Elimination of discrimination at work
Environment	<ul style="list-style-type: none"> • Preventive approach • Taking initiatives for the promotion of environmental responsibility • Development and dissemination of environmentally friendly technologies
Anti-Corruption	<ul style="list-style-type: none"> • Actions against corruption, including extortion and bribery

2. **Strengthening Society** is referred to the actions and collaborations that companies have with others to advance global challenges, to support the communities around them to one of the objectives of the companies.
3. **Leadership Commitment** is referred to the long-term change of a company’s leadership throughout the organization and the responsibilities that should take.
4. **Reporting Progress** is referred to the transparency in business practice that is crucial for sustainability. It also includes the public disclosure reports to stakeholders.
5. **Local Action** is referred to the company’s viewing of sustainability through a local lens. Also, companies with presence worldwide (operations, supply chains) must have and positions away from their seat, promoting sustainability.

According to the IGD, the number of food and beverage companies that invest in sustainability increasing since this offers a triple benefit for them (environment, consumers, balance sheet) (Pickard, 2009). Cost savings is a very good reason for

companies to invest in sustainability approach such as the retailer company Sainsbury, which reduced its cost significantly when started saving carbon and becoming resource efficient. Another example is Marks & Spencer which tackled climate change, waste, and sustainability of raw materials, fair partnerships and health. Moreover, Unilever by moving towards sustainability, was able to double its sales and reduce by half the impact in the environment, while new opportunities for sustainable growth and innovation appeared with high recognition of the brands in the market. Based on a Carbon Trust survey which is conducted in UK businesses, only 1/3 of the participants are willing to invest in R&D of green products and services, although they believe in green growth. But, investing in persuading consumers to buy products with a low carbon footprint, green growth will be enhanced (Pickard, The growing business case for sustainability, 2011).

Companies integrating sustainability in their practices publish their sustainable operating modes in their Corporate Social Responsibility (CSR) annual reports, demonstrating their environmental and societal commitment, what they have been achieved so far and what they are going to achieve in the future (Pickard, 2014). The first company that integrated CSR and financial reports in the annual report was Sainsbury in 2011. According to this company, CSR and financial condition are connected and contribute to the long term company's viability, because resources are utilized, energy is saved and consequently profit is saved. Another example is Marks & Spencer, which in 2007 created a five-year program to manage climate change, waste management, the issue of health and equity in partnerships and sustainability of raw materials; challenges that affect the operation of a business (Pickard, 2014).

However, many small and medium enterprises (SMEs) have difficulty understanding the concept of sustainability and the actions to be implemented for this. However, *"the two most obvious reasons for SMEs to invest in environmental issues are a) using market opportunities in order to improve their profitability and b) obeying the law"* (Evangelinos, Zotou, Kavakli, & Balis, 2008). A simple and affordable concept of sustainability could be adopted by businesses if it will offer them efficiency, will cost less or no money and would facilitate the entry of new firms. However, high energy prices and the forthcoming legislation on reporting of carbon levels lead businesses to be focused on sustainability certification, promoting their *"green"* actions to their customers (Davis & O'Halloran, 2013).

Although, sustainable development makes companies to be strengthened (EDC, n.d.), this does not mean that when a company has CSR strategy, has also a sustainable strategy. The President of PepsiCo of UK and Ireland Richard Evans supported that *“Sustainable businesses that invest in green economic growth can cut costs, drive innovation, reduce risk and motivate employees”* (Pickard, The growing business case for sustainability, 2011). Therefore, when a company takes the decision of sustainability, then it is called upon to take into account issues such as biodiversity and animal protection, human rights, principles of learning and more (Málovics, Csigéné, & Kraus, 2008).

The future is foreseen promising for businesses that take advantage of opportunities related to sustainability. Although the economic crisis seems to give limited opportunities, it gives also the chance for sustainable solutions such as the energy saving systems that can reduce the energy consumption and hence the carbon footprint, but also help the companies save money. By 2050 emissions should have been reduced by 80%, a figure that is based on the food industry (Pickard, 2009).

2.3. Corporate Social Responsibility (CSR)

CSR is one of the major issues, at a time when crises both in economic terms and in a climatic level, form a challenge (EDC, n.d.). It is also mentioned that *“Corporate Social Responsibility is becoming increasingly important to justify business practices to society in general and to stakeholders specifically”* (Ingenbleek, Binnekamp, & Goddijn, 2007).

The definition that European Commission gives to the Corporate Social Responsibility concept is that: *“Corporate social responsibility is a multi-stakeholder concept. Facilitating dialogue between stakeholders is an important part of the Commission's policy on CSR”* (European Commission, Multi-stakeholder Forum on Corporate social responsibility (CSR), 2014).

According to the European Commission, the first policy was begun in June 1993, in response to the problems of unemployment, restructuring and social exclusion. The most important policy milestones are presented below based on the European Commission research (European Commission, 2009):

- **2001:** Green Paper on CSR.
- **2002:** Communication on Corporate Social Responsibility (CSR) as a part of the Lisbon agenda. In October 2002, the Commission launched the EU Multi-Stakeholder Forum (MSF) on CSR. The European Parliament passed a first resolution on CSR endorsing the MSF and underlined the importance of the implementation of codes of conduct, and wider adoption of social reporting.
- **2003:** The European Parliament passes a second resolution on CSR, stressing the importance of the contribution of business to sustainable development, and supporting the greater uptake of the Global Reporting Initiative (GRI) standards.
- **2004:** Final report Multi-Stakeholder Forum calling for a better legal framework for CSR.
- **2006:** Second Communication by the Commission *“Implementing the partnership for growth and jobs: making Europe a pole of excellence on CSR”* was published on 22 March 2006. In this paper, the Commission defines CSR as *“a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis”*. An approach to CSR involving additional requirements for business risks being counter-productive and contrary to the principles of good regulation.
- **2007:** European Parliament resolution on CSR expresses that CSR can be enhanced and implemented using existing legal instruments.
- **2008:** Communication on the European competitiveness report noted the positive impact of CSR on firms’ competitiveness, and the need for more CSR activities in times of economic crisis.

In addition, according to the Export Development Canada (EDC) CSR framework established in the period 2003-2004, the period 2009-2010 were addressed the CSR strategic priorities about climate change, human rights and transparency while the environmental and social risk management were introduced (EDC, n.d.).

The nature of CSR remains complex. Although the term of CSR is known worldwide, diversity in cultural issues, developmental level of each country and priorities in different regions forming the term of CSR, which is adjusted in each case. However, in all the cases, the term of CSR should enclose the voluntary nature that CSR supports, the interdependence relation to sustainable development and above all the importance

that given by the undertakings when they decide to integrate CSR in their strategy (CSR Hellas, 2011).

However, after years of continuous research and based on the current challenges, the following list is created, which shows the priorities that should be explored in the field of CSR and which companies will face. These are according to the European Commission (EDC, n.d.):

- 
- Corporate governance
 - Collaboration, partnerships, clusters and alliances
 - Developing and emerging economies and societies
 - Diversity and excellence in CSR across the European Research Area
 - Competitiveness and CSR
 - Practices for change inside companies
 - Strategy and corporate governance for embedding responsibility in business
 - Managerial skills and organizational competences
 - Sector-specific and implementation studies
 - CSR and integration in SMEs
 - CSR and sustainability

Fig. 2. CSR Priorities (EDC, n.d.)

Nevertheless, CSR constantly requires research to fit the data of each era. Based on what various groups of stakeholders supported, the following list of topics is created for issues that should also be investigated in the future. These are the following priorities for future research, as listed by the European Commission (EDC, n.d.):

- 
- Developments in global governance as related to CSR
 - Development of new forms of collaboration, partnerships, clusters and alliances
 - Emerging economies and societies
 - Diversity of CSR across Europe
 - Competitiveness and CSR
 - Practices of change inside companies
 - Strategy and corporate governance
 - Managerial skills and organizational competencies
 - Sector specific implementation studies
 - CSR and SMEs and
 - CSR's contribution to sustainability

Fig. 3. Future Investigation of CSR Priorities (EDC, n.d.)

It also worth mentioning that the relations of the three parties i.e. companies, society and environment which compose the corporate social performance (CSP), give more clearly picture of the relationship between business and society and create more questions for future research (Wood, 1991).

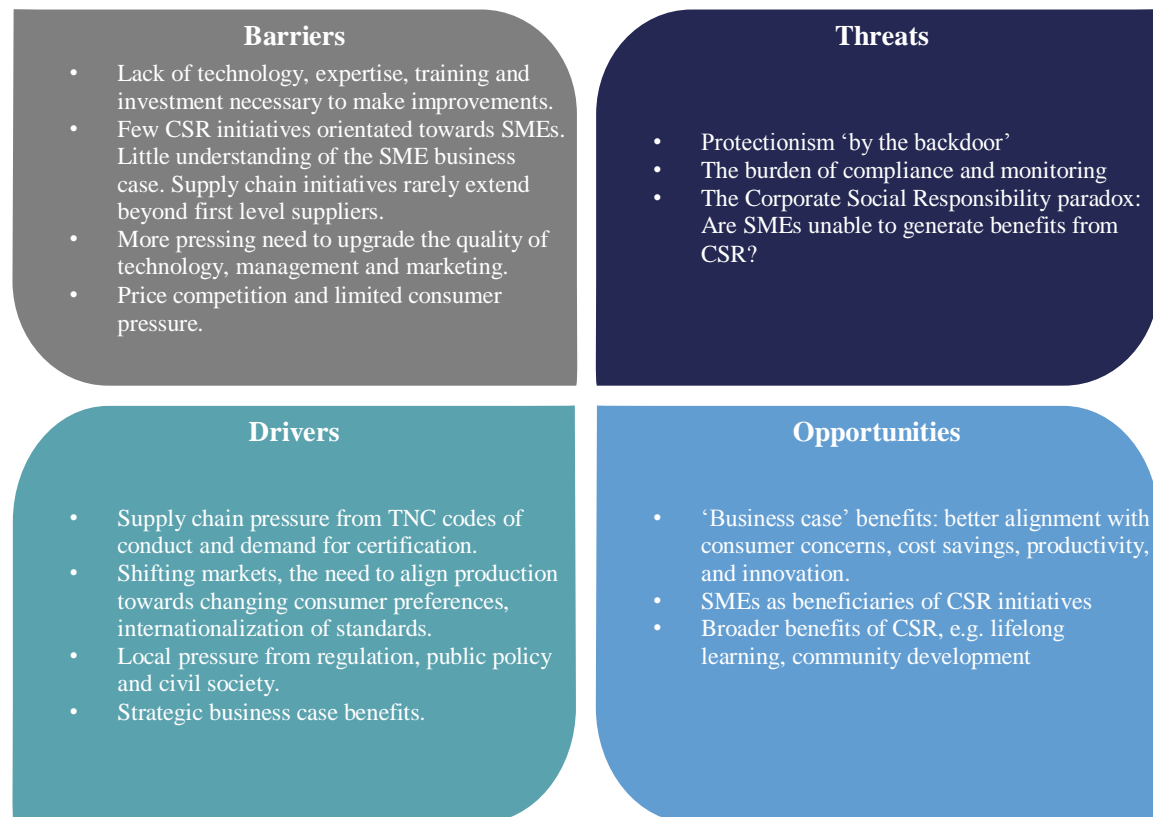
2.4. Companies and Corporate Social Responsibility

Businesses impute more when integrating CSR into their strategy and their operations, which they engage, not only they follow the legal framework, but also they understand the social sense, the sustainable development of enterprises and the increase of their competitiveness (EDC, n.d.). Although in the past the strategies of Corporate Social Responsibility constituted a separate section for the enterprises, today these are a part of the overall business strategy, because businesses have begun to understand that their performance is intertwined with the CSR policy (Pickard, 2014).

Large companies include the CSR concept in their approaches worldwide (Genier, Stamp, & Pfitzer, n.d.). CSR is treated as a moral concept by the companies, which show similar responsibility in the society (Argandona & von Weltzien Hoivik, 2009). The CSR indicates the nature of a business, what role it has in the society and what kind of relationship has with its stakeholders internally and externally. The concept is based before the Industrial Revolution with businesses to know and adapt their actions according to this. Of course over the years, there have been developments in the content of CSR due to historical, cultural, political, economic and social developments (Argandona & von Weltzien Hoivik, 2009).

CSR strategies for SMEs are limited because of lack of experience, time and resources. The need for new policy making approaches is imperative. *"One of the main challenges of CSR is defining it as it has different meaning to different corporations and crossing boarders can intensify this challenge"*. That is the reason that actions taken by big companies cannot be in the same manner applied by smaller. For example, the charity must be part of the competitive advantage of a company to receive a positive response. Due to its flexibility and less standardized structure, smaller companies adapt faster. *"SMEs are able to take advantage of some of their positive elements such as teamwork, co-operation between employees and managers, participation in procedures and open lines of communication"* (Evangelinos, Zotou, Kavakli, & Balis, 2008). In the following

figure it is summarized the barriers and threats SMEs are facing, along with the opportunities and the drivers for implementing CSR practices.



Another example is that the mechanical equipment meets the needs of large enterprises, without SMEs being able to adopt new technologies. In addition, packaging materials, consulting, marketing, printing brochures and catalogues are attractive services for large enterprises. Therefore, the difficulty of SMEs compared to large enterprises is that due to lack of entrepreneurship and cooperation between the entities, they cannot receive the knowledge and expertise that is developed in the field of research and education. Although SMEs want to be expanded beyond the local market and are supported by consumers, they act more locally and regionally, having little effect abroad mainly with PDO products, due to the low level of innovation and products' promotion (brand name, packaging) (Goussios et al., 2014).

Dairy companies' partnerships with biotechnology sections of universities recognize the benefits of milk. Also the production of milk by-products like casein for use in the timber industry and whey powder for production of bio-energy products, are movements of recent years. Moreover, SMEs have relied financially through EU programs to acquire the necessary machinery (trucks, refrigerators for milk transfer),

PV panels, certifications, but they cannot expand their actions nationally. However, quality management is a priority for most companies (Goussios, Tsiboukas, & Anthoupoulou, 2014).

Apart from the interaction with stakeholders, the food industry pays its attention on the quality and food safety in the supply chain and the ethical standards in the programs that are implemented (Ingenbleek, Binnekamp, & Goddijn, 2007). These standards and codes, according to (Genier, Stamp, & Pfitzer, n.d.), that many companies should take into consideration when deals with the CSR issues are divided into four categories and presented below:

Table 1. CSR Standards and codes for companies (Genier, Stamp, & Pfitzer, n.d.)

Environmental	<ul style="list-style-type: none"> • Ecosystems and biodiversity (e.g. provisions to protect virgin forest); • Natural resource inputs (e.g. water use, soil quality) • Manmade inputs (e.g. agrochemicals, pest control, GMOs) • Energy use and GHG emissions • Waste management • Production practices (e.g. crop rotations, site selection, animal welfare, over-fishing)
Labour conditions	<ul style="list-style-type: none"> • Occupational health and safety • Terms of employment (e.g. pay, hours, contracts, regularity of work) • Human rights in the workplace (e.g. right of association, rights for casual workers, no forced or child labour, non-discrimination) • General employee and family welfare (e.g. housing, access to education and healthcare, etc.)
Benefits to the local economy/community	<ul style="list-style-type: none"> • Producers' economic viability • Flow of economic benefits to workers and the local economy • Social and economic rights of others (e.g. indigenous land rights, local consultation) • Business ethics (e.g. fair dealing, no corruption, market transparency) • Education and role-modelling (e.g. open days)
Food safety and quality	<ul style="list-style-type: none"> • Traceability • Hygienic production and handling • Quality of inputs (seeds, feeds, etc.) • Quality management systems

According to European Commission, the competitiveness of enterprises is directly related to CSR, offering benefits to businesses such as how to manage risks and to save cost for the company, how to manage customer relations and available human resources and many others (European Commission, Corporate Social Responsibility (CSR), 2014). Many other benefits also derive when applying CSR. For example, CSR enhances the image and reputation of the company in both the stakeholders and the general public, resulting in increased sales and gain a larger share of the market, giving new incentives for employees to participate in company activities and improves efficiency the company saving time and cost.

Therefore, another important element of CSR is whether firms have the necessary responsibility and know the way they should manage their suppliers or their subsidiaries. This involves concepts such as respect for labour rights (salary, required freedom, balance work and personal life, health officials etc.), giving particular weight to the issue of child forced labour and showing the necessary respect for citizens and local communities (European Commission, Multi-stakeholder Forum on Corporate social responsibility (CSR), 2014).

However, businesses have to spend capital to acquire all the necessary equipment, according to the CSR policy. Also, the companies should cooperate with suppliers who operate on the social responsibility and to hire new staff, working on the CSR's implementation. Thus, those firms implementing a CSR concept, face higher costs as opposed to companies that are located in the same branch and do not apply CSR (McWilliams & Siegel, 2001).

Moreover, CSR has different meanings to each company and the successful integration of CSR depends on the practices to be implemented by the company (IGD, Corporate social responsibility, n.d.). On the one hand there are companies that use CSR only for reputational reasons i.e. enhance their public image, such as charity work. On the other hand there are companies that use CSR due to the fear of negative image, imposing moral codes throughout the value chain (from production to distribution). Thereby companies ensure a good reputation and profit. In addition, the company Danone Grameen in Bangladesh in order to produce yogurt, redefined the entire value chain (from production to distribution) based on the local conditions of this country. Additionally, the company works with suppliers that exploit child labour. Therefore, Nestlé in China between the period 2004 and 2007 used the manure from dairy cattle

into biogas production electric energy, heating and cooking as an innovation in the value chain. Moreover, most companies focus at specific market with competitive product. But this approach cannot meet the needs of developing countries, where purchasing power is moving in lower level (Genier, Stamp, & Pfitzer, n.d.). Hence, there is not a certain standard of CSR worldwide, because the changes that exist in a country differ from another country (Argandona & von Weltzien Hoivik, 2009).

Moreover, according to the article of McWilliams and Siegel, every business has its own characteristics. Based on them, it selects the level of CSR's implementation. These features are related to *"the size of each enterprise, level of diversification, research and development, advertising, government sales, consumer income, labour market conditions, and stage in the industry life cycle"*. It is argued that there is a level of CSR that is ideal because it offers maximum profit for the businesses and it can be calculated when firms analyse their costs and benefits. Also, the economic performance of a company and CSR are related (McWilliams & Siegel, 2001).

However, *"there is a perception that large companies are more likely to undertake CSR initiatives because they have greater capacity, funding and resources. But, many of the characteristics of SMEs mean that they are better placed to introduce CSR strategies"* (Davis & O'Halloran, 2013). CSR in SMEs enterprises is less formalized. Although a significant number of enterprises can have some kind of CSR activity, however the concept of CSR is vague for them, considering that CSR concerns is connected with larger companies. Such activities include participation in community initiatives by providing donations and sponsorships, volunteer work and promotion of local products and services. Moreover, SMEs companies operating in a region, is more connected with the local community and local stakeholders such as customers, suppliers, distributors and employees there, encouraging it to consider CSR important part of it. *"It might say so: the more embedded a company is in the community the more likely the company is going to take part in CSR"* (Davis & O'Halloran, 2013).

2.5. Dimensions of Corporate Social Responsibility

According to Carroll, *"Social responsibility can only become reality if more managers become moral instead of amoral or immoral"*. CSR as illustrated in the pyramid below is consisted by four types of responsibilities, which are the economic, legal, ethical and philanthropic (Carroll, 1991).

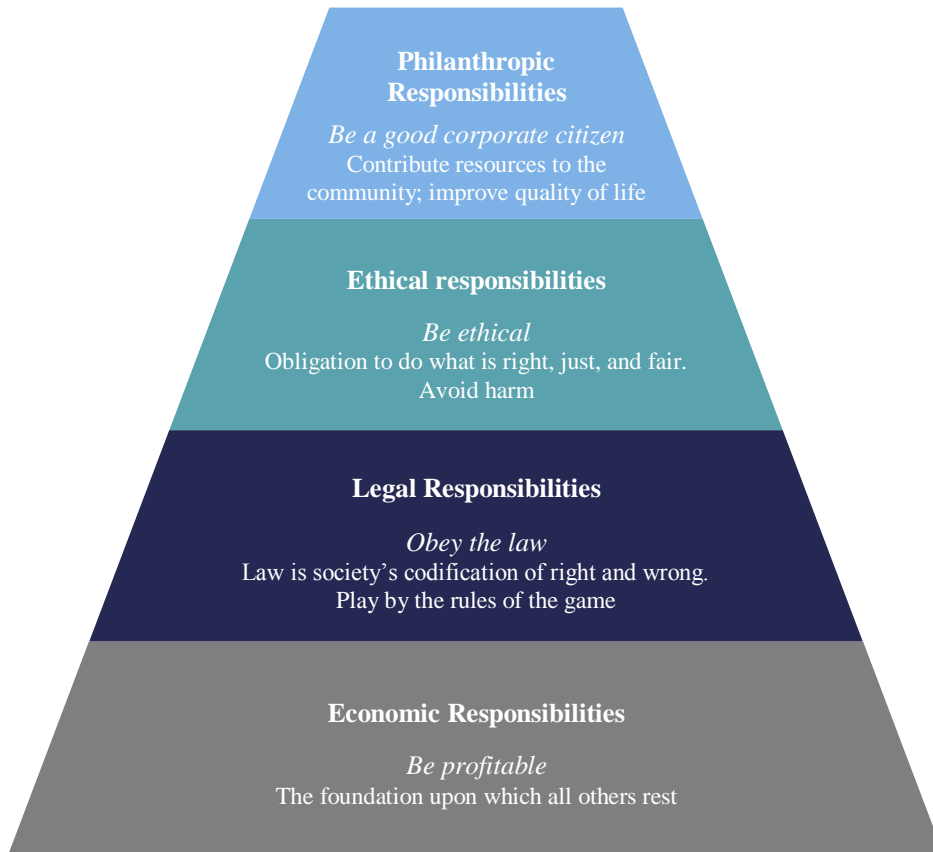


Fig. 4. The types of Social Responsibility (Carroll, 1991)

Another approach of CSR is based on the Klaus Schwab article with the five concepts of corporate engagement, in which CSR is differentiated from the corporate philanthropy or corporate social entrepreneurship. Corporate philanthropy deals with issues like donating money, goods, time or effort to support a charitable cause. Corporate Social Entrepreneurship is using a company's innovative capabilities to serve customers with products/services that improve global societal welfare. Moreover, corporate governance is complying with laws and ethical norms and it addresses also issues as values and principles and corporate conduct. In addition, Corporate Global Citizenship is improving the state of the world through business's engagement in processes and partnerships that address key global societal challenges (European Commission, 2009).

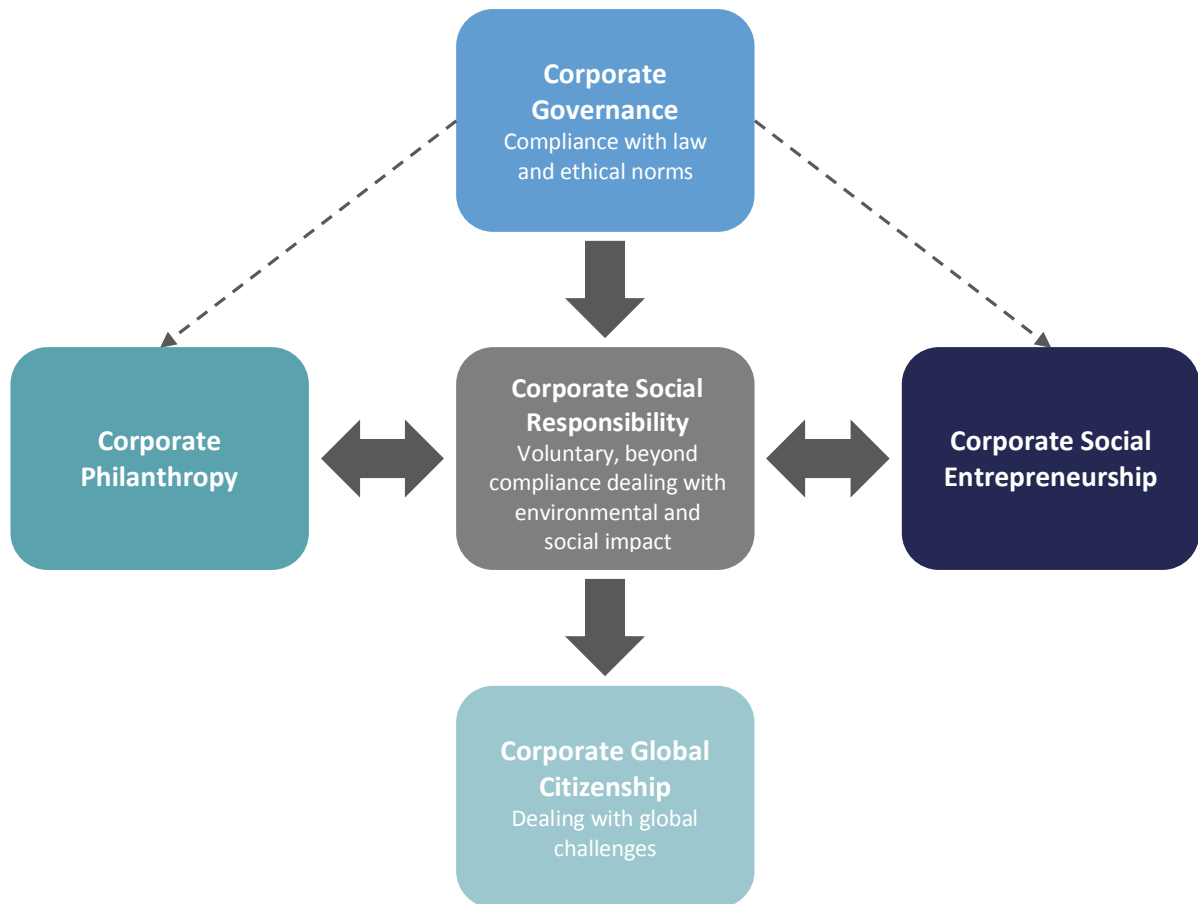


Fig. 5. The concepts of Corporate Engagement (Schwab, 2008)

In the Wood's article, a definition of Corporate Social Performance (CSP) is produced, which supports that CSP is *"the underlying interaction among the principles of social responsibility, the process of social responsiveness, and the policies developed to address social issue"*. In addition in the same article CSP is defined by Wartick and Cochran's (1985) as *"a business organization's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships"*. The table that is illustrated below shows what exactly the CSP model is (Wood, 1991).

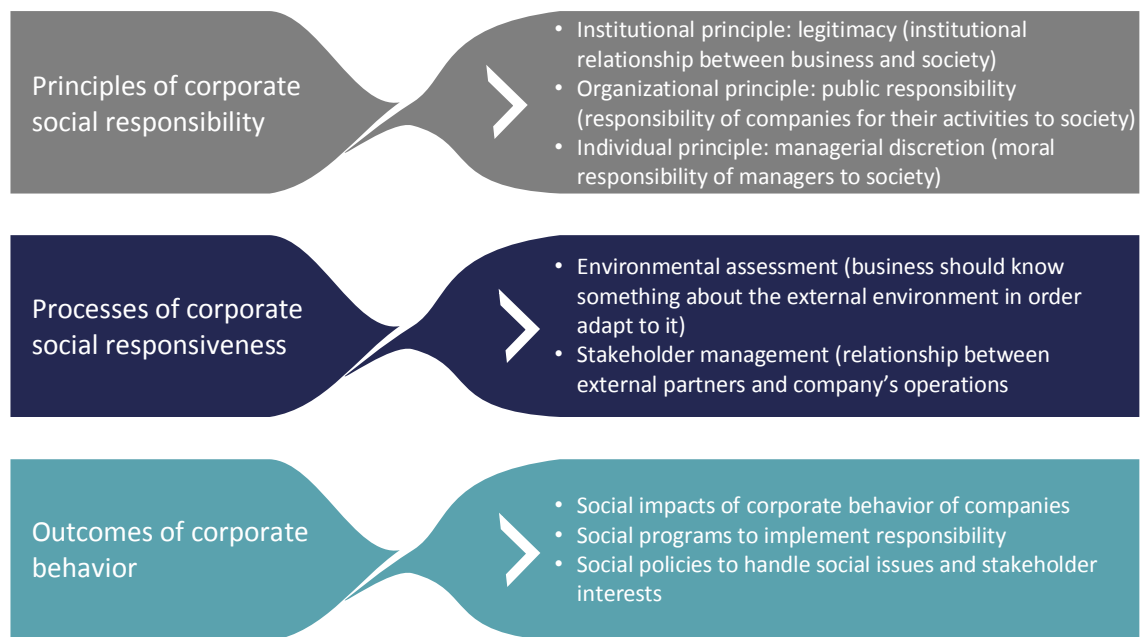


Fig. 6. The Corporate Social Performance Model (Wood, 1991)

Table 2. The Ages and Stages of CSR (Visser, *The Ages and Stages of CSR: From Defensive to Transformative Corporate Sustainability and Responsibility*, 2010)

Business Age	Stage of CSR	Modus Operandi	Key Enabler	Stakeholder Target
Greed	Defensive	Ad hoc interventions	Investments	Shareholders, government & employees
Philanthropy	Charitable	Community programs	Projects	Communities
Marketing	Promotional	Public relations	Media	General public
Management	Strategic	Management systems	Codes	Shareholders & NGOs/CSOs
Responsibility	Transformative	Business models	Products	Regulators & customers

According to Visser, *“the evolution of business responsibility can be viewed in terms of five overlapping economic periods – the Ages of Greed, Philanthropy, Misrepresentation, Management and Responsibility – each of which typically manifests a different stage of CSR, namely: Defensive, Charitable, Promotional, Strategic and Transformative CSR (which can also be called CSR 2.0, Systemic CSR or Radical CSR)”* (Visser, *The Ages and Stages of CSR: From Defensive to Transformative Corporate Sustainability and Responsibility*, 2010).

1. **Defensive CSR** in the Age of Greed: the practices are designed to protect shareholder value. The companies’ staff organizes voluntary programs and companies spend money on pollution control in order to avoid fines.
2. **Charitable CSR** in the Age of Philanthropy: donations and sponsorships from companies for the support of society and the environment.
3. **Promotional CSR** in the Age of Marketing: Through their charities and the promotion of green profile, companies aim at strengthening their brand and their reputation.
4. **Strategic CSR**, emerging from the Age of Management is related with the core strategy of companies and their alignment with society and environment, implementing CSR codes and environmental management systems, focused on micro level.
5. **Transformative/Systematic CSR** in the Age of Responsibility focuses on the companies’ identification and addressing the causes of unsustainability and irresponsibility with product innovation and services. It is the key for change in social, organizational and individual level, focused on companies’ understanding how macro environment is connected with society and the ecosystem and what kind of strategic changes should follow in order to succeed optimal results in humans and the environment.



Fig. 7. The Ages and Stages of CSR (CSR International, n.d.)

Companies are moving within these ages and stages, whose activities happen to be at different ages and stages at the same time. However, companies need encouragement to make the transition to the transformative CSR because otherwise, if they continue staying in one of the first stages of CSR, they will lead themselves to failure (Visser, *The Ages and Stages of CSR: From Defensive to Transformative Corporate Sustainability and Responsibility*, 2010). There are three reasons why companies are failed when they are moving in one of the four stages of CSR and not in the transformative stage.

1. **Incremental CSR:** Although CSR gradually improved the micro environment, both failed to address sustainability issues.
2. **Peripheral CSR:** CSR was a regional function in most companies. The development and consumption model that damages the environment and disrupts society could not change by creating companies that address CSR and bound by codes and standards that would improve the situation.
3. **Uneconomic CSR:** Although there have been results achieved on the topic of waste and energy, most changes of CSR is not performed, since what is required is a change in the strategy of companies and massive investments, which are not supported by the market.

What is needed is a change in the way that companies implement their CSR practices. Corporate Sustainability and Responsibility or CSR 2.0 or Transformative represents a new holistic model of CSR. *“CSR 2.0 is about designing and adopting an inherently sustainable and responsible business model, supported by a reformed financial and economic system that makes creating a better world the easiest, most natural and rewarding thing to do”* (Visser, *The Rise and Fall of CSR: Three Curses of CSR 1.0 and Five Principles of CSR 2.0*, 2010). Thus, it has on the one hand the sustainability and on the other hand the responsibility. *“Hence, sustainability can be conceived as the destination - the challenges, vision, strategy and goals, i.e. what we are aiming for - while responsibility is more about the journey - our solutions, responses, management and actions, i.e. how we get there. The challenge now is to admit that CSR 1.0 has failed and to make DNA CSR 2.0 into business strategy”* (Visser, 2011). In addition, both the corporate social responsibility (CSR) and corporate sustainability (CS) have as main feature the volunteering. However, when a business wants to reach the extensive and complex concept of CS, a CSR concept is prerequisite (Amini & Bienstock , 2014).

According to Visser, the CSR 2.0 model is consisted by five principles the Creativity (C), Scalability (S), Responsiveness (R), Glocality (2) and Circularity (0), as presented below (Visser, *The Rise and Fall of CSR: Three Curses of CSR 1.0 and Five Principles of CSR 2.0*, 2010):

1. **Creativity (C):** although codes and standards for CSR encourage towards CSR, the problems concerning both society and environment are more complicated and intractable.
2. **Scalability (S):** although the case studies around the responsible and sustainable projects vary, few companies manage to achieve this goal.
3. **Responsiveness (R):** more cross-sector partnerships and stakeholder-driven approaches are needed at every level.
4. **Glocality (2):** companies can be evolved, combining global thinking / standards with local action.
5. **Circularity (0):** a cradle to cradle approach is needed in order the loop of production and designing products and processes to be closed.

Therefore, this model includes four bases the value creation, good governance, societal contribution and environmental integrity (Visser, 2011), which are:

Table 3.DNA Model of CSR 2.0 (Visser, 2011)

DNA Code	Strategic Goals	Key Indicators
Value Creation	Economic development	Capital investment (financial, manufacturing, social, human & natural capital) Beneficial products (sustainable & responsible goods & services) Inclusive business (wealth distribution, bottom of the pyramid markets)
Good governance	Institutional effectiveness	Leadership (strategic commitment to sustainability & responsibility) Transparency (sustainability & responsibility reporting, government payments) Ethical practices (bribery & corruption prevention, values in business)
Societal contribution	Stakeholder orientation	Philanthropy (charitable donations, provision of public goods & services) Fair labour practices (working conditions, employee rights, health & safety) Supply chain integrity (SME empowerment, labour & environmental standards)
Environmental integrity	Sustainable ecosystems	Ecosystem protection (biodiversity conservation & ecosystem restoration) Renewable resources (tackling climate change, renewable energy & materials) Zero waste production (cradle-to-cradle processes, waste elimination)

1. **Value Creation** is related to economic development of a company, enriching its human resources by shareholders and executives and its financial position through investments in infrastructure, providing jobs and development to its employees.

2. **Good Governance** aims to increase efficiency and transparency of companies on society and the environment. This occurs through the annual reports presented by the companies, the integrating ethical conduct in their culture and the social media that they have.

3. **Societal Contribution** mostly used in the context of CSR, with the participation of stakeholders, the community and the supply chain. However, there are many reviews around this part of CSR, with slavery being increased and companies to turn their interest to the charity and fair employment practices with particular attention to child labour.

4. **Environmental Integrity** is more than minimizing damage to the environment. The companies aim to improve the sustainability of the ecosystem achieving 100% renewable energy and zero waste.

Another division of CSR concept is related with the dimensions of citizenship that are seven (Mirvis & Googins, 2006):

1. **Citizenship Concept** which is related with the extent of integration and comprehension that company's role has in society.
2. **Strategic Intent** concerning the purpose of citizenship and to what extent is integrated with main business strategy, products and services.
3. **Leadership** is referred to the importance that top leaders show in citizenship.
4. **Structure** refers to the way management of responsibilities as the main business of a company.
5. **Issues Management** refers to the degree of efficiency of a company-level policies and programs followed and that the faces when they arise.
6. **Stakeholder Relationships** refers to how a company approaches shareholders and whether it is opened to deep to these relationships.
7. **Transparency** refers to how open, regarding of its performance, is a company in financial, social and environmental issues and how it adopts transparent practices.

In the first stage companies are not particularly being aware to corporate citizenship and simply obey laws and standards governing the industry. In the second stage companies begin to get a different understanding of the role and responsibilities that should have towards society. Also, they review their core values, applying new code of conduct. In the third stage, the companies give more comprehensive consideration to the citizenship and innovation and learning are being prevailed. There is also a more opened communication with stakeholders and the companies publish reports, presenting their social and environmental performance. In the fourth stage companies evolve their development and they coordinate their efforts of citizenship, cooperating with them. Also, they set standards in order to monitor their performance. In the fifth and final stage, companies with vision and innovation are leaders in comparison with other companies. Firms collaborate with other businesses, community groups, NGOs and are expanded into new markets (Mirvis & Googins, 2006).

Table 4. Dimensions and Stages of Corporate Citizenship

	Stage 1: Elementary	Stage 2: Engaged	Stage 3: Innovative	Stage 4: Integrated	Stage 5: Transforming	
Dimensions	Citizenship Concept	Jobs, Profits & Taxes	Philanthropy, Environmental Protection	Stakeholder Management	Sustainability or Triple Bottom Line	Change the Game
	Strategic Intent	Legal Compliance	License to Operate	Business Case	Value Proposition	Market Creation or Social Change
	Leadership	Lip Service, Out of Touch	Supporters, In the Loop	Steward, On Top of It	Champion, In Front of It	Visionary, Ahead of the Pack
	Structure	Marginal: Staff Driven	Functional Ownership	Cross-Functional Organization	Organizational Alignment	Mainstream: Business Driven
	Issues Management	Defensive	Reactive, Policies	Responsive, Pro-Active, Programs	Systems	Defining
	Stakeholder Relationships	Unilateral	Interactive	Mutual Partnership Influence	Alliance	Multi-Organization
	Transparency	Flank Protection	Public Relations	Public Reporting	Assurance	Full Disclosure

Last, but not least, the application areas of CSR programs are divided into those that related with the internal part of a company and those that related with its external environment. The first four areas of concern are related with the internal part of a company and the others with its external. These are:

Table 5. Internal and external CSR Application areas (CSR Hellas, n.d.)

Internal part	Mission, values and vision	
	Working environment	Working conditions - Equal opportunities - Training and Professional Development - Compensation & Benefits
	Social dialogue	Relations with employee representatives, management changes in business
	Human rights	In the workplace outside the workplace, Child labour / Forced labour
External part	Engagement with local communities	In collaboration with the community, benefits and donations to the community, participation of workers
	Development of local finances	Job creation and entrepreneurship, employment, youth programs
	Environment	Sustainable Development, Green activities, waste management, prevention of pollution
	Market	Relations with the supply chain, Product Management, Research and Development Marketing, responsible investment
	Ethics	Bribery and corruption, conflict of interests, fair trade, Code of Conduct

2.6. The role of actors

Sustainability has become a part of CSR and CSR cannot itself contribute to sustainability. For the food industry, the sustainability concept is a priority (Pickard, 2009). What is necessary is the active role of society, with the participation of governments, businesses and citizens that can contribute to the achievement of sustainability. The social concern of citizens, consumers, public authorities and investors for the environment and the damage, which is suffered mainly from the industrial and business sector, promotes even more CSR in Europe (Málovics, Csigéné, & Kraus, 2008).

In new green measures many governments invest worldwide in order the economy to be stimulated and climate change to be tackled. The same applies to companies that are modernized and applying new innovative technologies aimed at sustainability package and cost reduction. In addition, many companies create partnerships with competitors in the same industry to define common values, to handle jointly risks, exchange ideas shaping their position and strengthen their links with the local community (producers, suppliers, communities) (Genier, Stamp, & Pfitzer, n.d.).

In addition, challenges and reviews, which food companies accept and face, are many. Governments, internationally renowned organizations and companies try to offer solutions to contemporary issues of sustainability, regulations and standards that governing food and policies to be followed by food companies (Rana, Platts, &

Gregory, 2009). In general, the literature emphasizes how the policies, which are implemented by the CSR, affect the economic performance of a company; to what extent motivate employees and ultimately what the customers perceive. There are few reports showing the way in which the companies implement a CSR policy and their contribution to social issues. It is supported in the literature that the business relation with society is in fact the relations with stakeholders. The cooperation of Unilever with WWF, and the Nestlé with Common for the Coffee Community Code are examples of companies that have concluded partnerships with organizations to support social issues (Ingenbleek, Binnekamp, & Goddijn, 2007).

2.7. The role of communication

Today the image of companies is changing, with investors, customers and suppliers to have more and more knowledge about green development. Companies implement CSR and they have added the sustainability in this context. Thus they improve their reputation, promoting their new achievements to consumers and also they measure their performance. The communication plays an important role in order all these changes to be supported (Reilly & Hynan , 2014). Advertising supports CSR, especially in food products, which informs consumers about what is going to buy. Apart from this, the ad reinforces the reputation of a company for quality, reliability and honesty. In addition, the companies' reputation is enhanced when the marketing sector applies CSR. Some examples are the companies Ben & Jerry's, Body Shop, Health Valley. CSR can achieve the differentiation of products, while research and development the innovative products and processing (McWilliams & Siegel, 2001).

However, there are many queries surrounding the issue of communication that companies/organizations apply on CSR. These queries focus on how this communication takes place, if the communication differs from company to company and if it follows specific standards. The most common means of communication that is used by companies is the internet; through companies promote the responsibility of their societal actions (Ziek, 2009).

One way of communication is social media (Facebook, twitter, YouTube), where companies can create an active communication between organizations and stakeholders. In a research which was conducted in the US, social media networking

are used by two thirds of large companies and an even larger share of smaller firms as a means of communication to inform all consumers worldwide (Reilly & Hynan , 2014).

Another way of communication is the creation of online platforms between traders and suppliers to exchange best practices and systems and to be transparent in their cooperation. Also, Tesco in the UK gives access to consumers through its website to monitor how the products are produced in the whole supply chain. With this way the company builds trust with consumers (Pickard, 2014).

However, some environmental actions, which are enforced by food companies, are not made known to the general public due to difficulty in the transfer of information. For example, zero waste that one company has during its products' production and low carbon levels that are produced by a milk company due to changes in its animals' diets (Pickard, Why sustainability is a smart strategy, 2011).

Therefore the use of technology to promote firms and the communication with consumers gives to them a competitive advantage in the market in comparison with companies that do not use these new communication media. Another innovative way is the placement of special code named Quick Response (QR) on products such as Nestlé placed in its product Kit Kat chocolate bars, giving nutritional information to consumers of this product, as well as informing them about the impacts on the environment and society (Pickard, 2014).

2.8. Companies' Debate

It is argued that the concepts of sustainability, international development and reduced poverty are related to the concept of CSR (Blowfield, 2005). Modern CSR presents the values that current businesses implement, which according to Blowfield includes *“to make a profit, the universal good of free trade, the freedom of capital, the supremacy of private property, the commoditization of things including labour, the superiority of markets in determining price and value, and the privileging of companies as citizens and moral entities”*.

In addition, the contribution of Corporate Social Responsibility (CSR) into sustainability plays an important role in the business field. And the business sector plays a key role in the support of the CSR concept. So, the businesses, escaping from the concept only the production of goods and profit creation and showing their attention to

the environment and society, can contribute to a better world (Málovics, Csigéné, & Kraus, 2008).

Analysing companies' CSR operating in the food sector, it is perceived the challenges that they face and how to overcome. The concept of sustainability incorporates three concepts, society, economy and environment. Therefore, policies and decisions should reflect a more broad view of social issues. Although the current food companies are going through a transition, their faith in the principles and values which apply since their establishment is the strength to move towards sustainability (Rana, Platts, & Gregory, 2009).

Although, businesses care about a sustainable and eco-efficient environment, the CSR practices and the guidelines about sustainability are poor, restricting companies to express their environmental actions outside the companies. So, many of these actions remain only internally in the companies and only few of these are communicated externally, but mainly staying in a local level. The reduction of the environmental impact of a business, implementing an environmental policy in the whole chain from production to consumption is one of the internal practices that companies should take into account (Málovics, Csigéné, & Kraus, 2008).

In addition, the environmental reports of multinational companies present their internally and externally practices and how the companies contribute to the environment and society. External practices could qualify the incentives that given to employees and managers in order to participate in projects for environmental improvement, participation in charitable activities, improving the community, the environment and the strategic alliances between multinational (Málovics, Csigéné, & Kraus, 2008). Nevertheless, it is argued that managers implement CSR's resources with an unwise way in order to meet their own interests politically, socially and professionally. On the other hand, businesses choose their stakeholders based on trust and ethics, elements that will lead them to have an advantage over their competitors (McWilliams & Siegel, 2001).

Also, the number of firms, which have incorporated CSR and sustainability in their operations, is increasingly growing. Therefore, innovation is needed in order sustainability to be achieved both in the short and long term and to be integrated in the companies' strategy. An example is the agri-food sector, which is based on natural,

human and material resources and innovation can achieve sustainability in the long term (Genier, Stamp, & Pfitzer, n.d.).

However, the concept of sustainability has a subjective character. Some companies perceive sustainability as a change in practices, while others associate it with the company's viability in the coming years. Some companies say that the economy and sustainability are not related, and others that sustainability is part of CSR and that brings cost and not profit. It is certain that sustainability is not an easy task, since an enterprise should adjust its practices and technologies that it uses in order to achieve the goal of sustainability. Nevertheless, innovation and sustainability are two interrelated concepts; sustainability is the driving force of innovation that will make a difference in business, especially in a recession of the economic situation (Emerald Group Publishing Limited, 2010)

Food and beverage companies face many environmental challenges, dangers, risks around the issue of sustainability in the supply chain (raw materials, manufacturing, storage, transport, wholesale and retail and end user, and end of life) (IGD, 2011). The environment is one of the current issues. Water scarcity and depletion of natural resources and the countless plastic that has been used by food and beverage companies and retailers for product packaging and plastic bags are matters of concern for companies and buyers (Pickard, Why sustainability is a smart strategy, 2011).

However, sustainability is a strategic issue, with environmental benefits, benefits for the consumers and financial benefits for these companies (Pickard, The growing business case for sustainability, 2011). According to a survey, consumers are willing to buy environmentally friendly products, but they seek for inspiration and motivation. Food companies can produce this kind of products for the consumers, if they use innovative technology. An example is the product of detergent Ariel Gel by P & G, which due to an innovative technology can wash the clothes at 15 instead of 40 degrees Celsius, wasting 50% less energy, with benefit to the consumer. Another example is the coffee products Kenco, which changed its packaging into environmental friendly packaging, increased its market share rapidly, sending the message of the willingness of consumers, who support environmental ideas (Pickard, 2012).

In addition, consumers consider that the food industry should have a more active role in the sustainability issue, monitoring constantly their suppliers regarding their

environmental actions (Pickard, 2012) and by including in their activities the animal welfare and diversifying products by this feature (Deselnicu, Oana, Costanigro, Marco, & Thilmany, Dawn D., 2012). Also, consumers prefer product labels that comply as much as possible the activities of CSR. This means that they prefer to buy a product which has the essential feature of animal welfare over another that has less or no this feature. Other features such as nutrition, taste and food safety play an important role in the choice of a product (Deselnicu, Oana, Costanigro, Marco, & Thilmany, Dawn D., 2012).

Apart from the high importance that gives the consumers to the animal welfare (animal health, outdoor nutrition, natural breeding), they classify other activities that should be included on the CSR activities of a milk production company, which are the sustainable agricultural activities (crop rotation, use of organic fertilizers), the energy consumption (equipment for energy savings in the processing of milk), waste management (waste composting and control liquid waste), employee opportunities (fair benefits, wages, workers' evolution), air pollution, support of local community with use of resources, the economic support with offering jobs, water management (recycling and reuse for irrigation in pastures) and the company involvement (volunteering, charitable events). However, it is revealed that CSR and product label cannot be associated, because many times the information of CSR is not being perceived on the label by consumers or the willingness of consumers to obtain products with specific characteristics is reduced (Deselnicu, Oana, Costanigro, Marco, & Thilmany, Dawn D., 2012).

Moreover, both the food and the manufacturers and retailers companies need a tool that can assess in what condition is the chain, to understand the concept of sustainability and to recognize the opportunities that are offered by the food industry (IGD, 2011). If the companies could measure the impact of the CSR practices/activities that they implement, they could assess these practices in order to improve these (Weber, 2008). The IGD's Industry Sustainability Group Freeware Matrix is one kind of means in exchanging information and knowledge about environmental issues in every part of supply chain (IGD, 2011).

Of course, the measurement of sustainability is not an easy thing. They are required different ways and different multiple communication media. The environmental sustainability is achieved by measuring the carbon footprint and water pollution. The economic sustainability is achieved by continuing viability of the economic system of

the company and the social sustainability is achieved by contribution of companies in the local community, charitable activities and safe working conditions for their employees (Reilly & Hynan , 2014).

An example is the Tyson Company that produces meat worldwide, possessing one of the highest places in world production. This company has reduced water use and it uses fewer alternative fuels compared with similar companies in the world. However, it is important to point out that giving a company the characterization of the green card or not is not that easy (Reilly & Hynan , 2014).

Another example is the dairy SMEs Company KOURELAS S.A. that is being active in the region of Grevena. The processes of milk collection, storage, pasteurization, processing, curing, packing and storage of final products are managed by the company. The company has its own fully equipped laboratories, implementing a comprehensive quality control system and safety-health food, certified by HACCP, ISO and BRC. As environmentally oriented, all generated waste are delivered to a processing facility. Also, it is the first company in Greece that started producing organic products and continuously it educates its employees. The company also has significant export activity (Davis & O'Halloran, 2013).

2.9. Sustainability and Corporate Social Responsibility in Greece

Research of EY that was performed in Greek companies the period 2010-2012 reflects the degree of significance that the companies focus on the issue of sustainability, based on the published reports of the companies. It is observed that since the beginning of 2000 the sustainability reports had a significant increase in 2010, reaching the highest percentage. However the following years this number has decreased. One reason could be the economic crisis in the country. Sustainability reports benefit the companies offering their estimates for the quality and effectiveness, cultivate land for investment, differentiate from competitors and create a climate of trust and commitment on the part of workers. However, according to this research, only 49 firms synthesized such a report in 2012. Regarding the field of consumer products the sustainability reports were 8 in 2011 and 2012 compared with the corresponding 2010 (12 in total), with the reduction being large compared to other sectors (EY, 2014).

The value of sustainability reporting is not yet appreciated trying to evolve as a strategic business tool. However stakeholders and investors are seeking worldwide these reports

because the assessment of the viability of a business and practices applied can play a key role in the economic situation of each company (EY, 2014).

Table 6. Sustainability Reports in the consumer products' sector (2010-2012) (EY, 2014)

Sector: Consumer Products (cosmetics, retail, food and beverages and home appliances)	Sustainability Reports 2010	Sustainability Reports 2011	Sustainability Reports 2012
AB Vassilopoulos	✓	✓	✓
Apivita	✓		
Athenian Brewery	✓	✓	✓
BSH Home Appliances	✓	✓	
Carrefour	✓		✓
Coca-Cola Tria Epsilon	✓		
Coca-Cola HBC AG (Group Company)	✓	✓	✓
Coco Mat	✓	✓	✓
Fourlis	✓	✓	✓
FrieslandCampina Hellas (Nounou)	✓		
Metro Cash & carry			✓
Nestle Hellas		✓	
Nireus	✓	✓	✓
Unilever	✓		

2.10. Corporate Social Responsibility and Sustainability strategies in the dairy sector, globally and in Greece

Based on the table of the 29 Food Companies that operating in the dairy sector and the market shares, as analysed in chapter 3 of this thesis, the first ten large and multinational enterprises is chosen.

2.10.1. Danone (global)

Danone is a global food company turned to health and well-being. It is said that: *“Talking about health through food means, above all, addressing local cultural, socio-economic and nutritional requirements”*. It is the first pioneer company in the dairy fresh products worldwide. According to their moto that *“Healthy food begins with healthy nature”*, Danone has identified four key commitment areas: climate, water, packaging and agriculture, setting goals for each, in the program Nature 2020. Today nature faces growing pressures and that impacts the resources and the business, low

yields, high prices and markets are growing challenges every day. So, Danone tries to reduce these impacts and it has achieved a lot during these years. About the climate, it reduced the carbon footprint 37% in five years from 2007 till 2013 and it is going to reduce 50% the footprint by 2020, restoring eco-systems and eliminating deforestation for the supply chain. About water, it is protecting eco-systems around existing and future sources, using as a tool the collaboration with IUCN and Ramsar and how to use water by measuring water footprint, cutting 60% water reduction by 2020 and setting guidelines for wastewater. Packaging waste is bad news for consumers, environment, and business. In 2020 scale up collection in countries that is most needed with 25% rPET and 90% recycled cardboard, by using next generation bio-materials and moving away from oil plastics. A competitive agriculture that respects eco-system and cycles is in the plan till 2020. Danone contributes in the agriculture with introducing new tools for farmers, models and solutions. It has new approaches and smarter ideas, making the difference and partnerships with the communities (farmers to stakeholders to consumers and everyone in between) to *“Bring health through food to as many people as possible”* (Danone, n.d.)

2.10.2. Danone Dairy Products S.A. (Greece)

Danone actions about Corporate Social Responsibility are focused on the progress and prosperity of the society. The market, consumers, employees, society and environment are the pillars of Danone CSR. The beginning was in 2010, supporting vulnerable group of people both materially and morally as the active children’ support of the organisation *“Smile of the Child”*. Visits to schools and educational institutions is another example in order children’ education and entertainment to be supported, covering part of their annual needs in diet, schools books and materials, clothes. In addition, Danone organises voluntary blood donation in collaboration with the hospital 'Children' supporting the children that are hospitalized there. Therefore, it supports annually many organisations offering its products supporting indirectly vulnerable people. In 2011, it supported two small bears of an NGO organisation, which had food intolerance, with its products. Although the difficult financial situation has affected the CSR actions, the challenge is CSR tries to be continued and be embraced by all, having the prevention as an aim (Danone Dairy Products S.A., CSR actions, n.d.).

2.10.3. Nestle (global)

Nestle “*Good Food, Good Life*” focuses on environmental sustainability. In 2013 there were important reductions (waste for disposal 30.6%, total water discharge 23.7%, total water withdrawal 18.2%, direct GHG emissions 1.2%), while the total on-site energy consumption increased 10.7% and the total production volume 17.3%. However, the goals are continued and it is expected zero waste in all its 153 factories (31 factories achieved the goal in 2013), reduced water consumption by 40% in 2020 (36% reduction 2004-2010) and 20% less GHG emissions (39% reduction 2004-2010). The responsible and sustainable way of production of raw materials, which are used for the Nestlé’s products, is an important issue for Nestle Company, improving farmers’ life training them, monitoring child labour, building schools (Nestlé S.A. - European Affairs Office, 2014).

Some actions of Nestle are the improvement of farmers’ lives in South Sudan, offering the economic activity of beekeeping in the smallholder farmers, giving them all the equipment and train them in the honey production. Another shared value action is the empowerment of women in the cocoa supply chain (Nestle S.A., 2014). Moreover, Nestle has a huge portfolio with products. In these products, it has dairy products such as the Carnation milk, taking care about the global healthy nutrition of people. Also, it started working with farmers in developing countries in order to supply safer and qualified milk.

According to Nestle, “*Creating Shared Value is the way we do business and the way we connect with society at large*”. The creating shared value of Nestle includes three elements, the compliance (laws, business principles, codes of conduct), the sustainability (protect the future) and the creating shared value (nutrition, water, rural development). Moreover, Nestle took the first position in 2013 in the Oxfam sustainability scorecard with the label “*Behind the Brands*”, which helps poor communities in the world. It has collaboration with external institutions; it offers job positions to the young people, trainings about environmental awareness to the employees, it eliminates child labour in key commodities (cocoa, hazelnuts, vanilla). The sustainability issue is focused also on how to manage biodiversity impacts. It uses the Packaging Impact Quick Evaluation Tool (PIQET) in order to measure the environmental impact. In 2013, around 65 thousand tons of packaging material were

saved and by 2015 it is expected 25% energy consumption and zero waste for disposal in 10% of its factories (Nestle S.A., 2015).

2.10.4. Nestle Hellas S.A.

Nestle pays attention to nutrition, health and wellness. All its products evaluated for their nutritional value, which is provided to consumers through the “*Dietary Guidelines*” and the indication of the GDA's in the package of the products. Nestle actively indicates the sensitivity of the problem of obesity and general health issues related to diet and physical inactivity. Having cooperation with the Department of Nutrition and Dietetics Harokopio University of Athens, it provides knowledge in nutritious issues to schools, helping more than 100 thousand children across Greece to improve their diet. It is also provides nutrition education to the entire company staff and external partners. Therefore, Nestle invests in the continuous development and improvement of the nutritional profile of its products in all categories, reducing salt, sugar, hydrogenated vegetable and saturated fat and adding more nutrients and beneficial micronutrients. Moreover, the responsible disposal of baby milk in developing countries is ensured, following strictly the World Health Organization’s code. In addition, in children aged 6-12 only products that meet a more balanced nutritional profile are advertised (Nestle Hellas S.A., Nutrition, n.d.).

The responsible management of global water resources is a priority and commitment for Nestle, which supports renewable water use and ensures the rational use it in its activities. Its aim is the production of tasty and nutritious foods and drinks with the smallest possible ecological footprint. So, it strives every day to improve the efficiency of its operations and its environmental performance, examining the long-term consequences of its activities and those related to larger production process, contributing to a better future and creating mutual benefit for Nestlé, and for the society (Nestle Hellas S.A., Water, n.d.)

Moreover, the welfare of the communities from which it derives the agricultural raw materials for its products is basic part of Nestle. The aim is as to maintain the quality of raw materials as to support the local communities, providing employment, encouraging rational production practices and offering a better quality of life to rural people (Nestle Hellas S.A., Rural Development, n.d.).

2.10.5. Delta (Vivartia) Food Products S.A.

Vivartia's social responsibility is demonstrated through its responsibility for the quality of products produced, jobs offered, taxes paid, opportunities for business development created, cooperation with recognised social agencies and organisations. Significant part of its investments is provided to the production of innovative products, to a trust relationship with the consumers and respect to the local communities where it has presence. An acclaimed charitable institution is the social program ArGOODaki, which contributes to cover basic needs of children and improve their quality of life. Since 2002 more than 4 million euros are collected and 3,200 children have been supported (Vivartia, n.d.).

Delta's environmental responsibility includes many actions. In 2009, it was an active sponsor of the recycling fest in the city of Athens, where citizens and pupils recycled metal, plastic and glass packages with the number of the recycled appliances to be more than one million. The same year, it organised an environmental education workshop where citizens and pupils learned about the recycling process and its environmental benefits. In addition, it supported the integrated reciprocal recycling system in the city of Athens, offering five integrated reciprocal recycling centres. In addition, some actions were done for recovery of thermal energy in Delta's factory in Platy Imathias due to the high thermal energy requirements that the production of condensed milk require. With a number of interventions in various parts of the factory's facilities, the total annual consumptions reduced 11% i.e. 3 thousand MWh per year. In addition, the installation of face liners equipment in the same factory reduced the total electricity consumption 9% and totally in 455 thousand KWh in 2008. Also, reduction of packaging materials was implemented in order the environmental impact to be minimised (Vivartia, n.d.).

Moreover, sludge disposal from factory's sewage treatment in Platy Imathias and use the dry sludge in the agriculture for fertilizing crops was a pioneering action that Delta had, working with the Municipality of Platy. This cooperation has been continuing for three years now. Over the last two years ten inverters have been placed at the Sindos factory in Thessaloniki for electricity savings. Also, the creation of a combined heat and power plant at the factory in Aghios Stefanos Athens for energy supply and the reduction of energy dependency from imported forms by diversifying the sources of energy supply as well as to protect the environment. Other actions of an environmental

nature are the collection and recycling of paper, batteries and other recyclable materials and the recycling of industrial products, giving the edible materials to pig farms (Vivartia, n.d.).

Therefore, companies that belong to Vivartia group have social responsibility about society, education and civilization. Hence, Delta gives the chance to pupils and students to visit the facilities in order to have a tour in the production part offering, educating and informing children on issues of nutrition and quality (Vivartia, n.d.).

2.10.6. Dodoni – Rural Dairy Industry Epirus S.A.

Dodoni has widely contributed to the Greek society. The industry gets fresh milk mainly from producers of Epirus, supporting in this way more than 5 thousand producers in the region. The economic activity of the area is supported by Dodoni, which employs 400 permanent and seasonal employees. The company also supports with sponsorships on an annual basis cultural, athletic, educational and social activities. Children and athletics are of prime importance for Dodoni, supporting dozens of sports events. In addition, the company supports families, providing its products and institutions where children and dependent persons are housed, assuming their feeding (Dodoni, n.d.).

2.10.7. Fage Milk Processing Industry S.A.

Corporate social responsibility is included in values of Fage. The industry respects the needs of its consumers, employees, partners and suppliers, paying a daily effort to be worthy of their trust. It implements comprehensive quality assurance systems throughout the chain from production to consumption and recycling systems too, respecting the environment. Moreover, the industry ensures safe and healthy working conditions, respecting the rights and personality of each individual, providing continuous training and encouraging initiative, cooperation and professionalism (Fage Milk Processing Industry S.A., n.d.).

2.10.8. Friesland Campina (Nounou)

Corporate responsibility and sustainable practices are interrelated and compensated to Friesland Campina. Its business activities are centred to society and four other pillars, human, nutrition and health, the environment and sustainable agriculture. By offering dairy products, it tries to fight against the problem of malnutrition and to enhance tackling poverty, supporting the Greek family. With its products supports numerous

operators who provide social services, such as nursing homes, rehabilitation centres, orphanages, municipalities, institutions of Church and Local Government that provide help to people with stance to people with intense economic problems (Friesland Campina (Nounou), Corporate Social Responsibility, 2014).

2.10.9. Kolios Greek Milk Industry S.A.

The raw material is prime importance for products of Kolios. Skilled scientists (veterinarians, agronomists) continuously monitor nutrition and animal health, with particular emphasis on free grazing and its feeding with domestic natural feed from plants growing in Greece. Also, scientists are responsible for the education of farmers on good on good hygiene and management of the animals in order to provide them a healthy, clean and comfortable living environment. Moreover, Kolios invests in new technology and staff training. Respect to the consumer, care for the environment, reliability and excellent spirit of cooperation are some of the core values of the industry (Kolios Greek Dairy, Profile, 2013), (Kolios Greek Dairy, Vision, 2013).

2.10.10. Koukaki Farm S.A. Dairy Products

The company implements an environmental management system, food safety management system and quality management system and non-use of genetically modified feed. Parallel biological treatment operates which prevents the contamination of the natural environment. Additionally, the company implements corporate social responsibility program, using recycled materials (paper, plastic, iron, organic residues) and also it packages the milk in pet bottle that is fully recyclable. Also, the quality of dairy products is of prime importance, producing products with nutritional value, quality and taste, respecting the environment and future generations. It has land, with mostly organic farming, where soil analyses are conducted in order to control fertilization. Also, manure from the animals is used in the farming, which hare used for livestock feeding. In addition, the company owns the site, called “*child zone*”, providing information in fairytale form for the value of milk, advices for the Mediterranean diet and how the kids to read the food labels. Also, Koukaki Farm opens its doors to the schools that visit the farm having access to farms and monitoring the production process of products’ manufacturing (Koukaki Farm S.A., n.d.).

2.10.11. Kri-Kri Milk Industry S.A.

The threefold society, environment and culture is part of the social responsibility of Kri-Kri. As part of its social profile, the industry supports charities and non-profit organisations. It collaborates with academic institutions in the country for students' internship and it participates in "career days" in the universities. Still, the company organizes educational visits for pupils and students at the company and promotes the development of business in Serres, where it operates, through events. The increased recycling and reduced number of waste in recent years is part of the environmental actions of Kri-Kri. Also, the company implements management systems for waste electrical and electronic equipment, has cooperation with a company for the management of solid waste and uses natural gas by 2010 to have reduced emissions. With regard to cultural activities, the Kri-Kri supports different actions to strengthen the local community, such as sports events and the support of the Municipal Theatre of Serres (Kri-Kri Milk Industry S.A., Social responsibility, 2014).

2.10.12. Mevgal Milk Industry S.A.

The social action of Mevgal is an integral part of the 60-year progress. Its actions are focused on the environment, health, child, culture, volunteering and its employees. As dairy industry, it considers that the update and prevention in skeleton health is required. Hence, it is fundamental sponsor of the Greek Support Association of Patients with Osteoporosis. It collaborates with the Greek Cardiology Foundation and the Greek Society of Atherosclerosis in order to inform the public on nutrition issues and about dairy products that meet the needs of a healthy diet. It also supports the work of many social actors. In addition, under the voluntary character that Kri-Kri has, blood bank is operated where company's employees donate their blood volunteering.

Apart from the continuous training offered to employees, it offers financial aids to those who have children. In addition, Kri-Kri supports local communities in the areas where is located and has established partnerships with several local agencies, farmers and suppliers. Moreover, it has developed a standard training program entitled "*Dairy: Pleasure-Health-Play*" for students of all ages at its facilities in Thessaloniki in cooperation with the Aristotle University, aiming to dietary treatment of children (Mevgal Milk Industry S.A., Action for a better life, 2015) (Mevgal Milk Industry S.A., School visits, 2015).

2.10.13. Olympus Milk Industry Larissas S.A.

Corporate social responsibility for Olympus is an integral part of long-term strategy, recognizing the responsibility that corresponds to its business towards society and the environment. Olympus protects the environment and saves natural resources, using all the available materials, reducing the consumption of electricity, gas and water and handling their waste by recycling or withdrawal. It uses Braille format for people with impaired vision, placing the word "Milk" and the letters "F" full and "L" light on the lid of the packages into three categories of milk. It also has autonomous wastewater treatment plants so that the water can be returned to the ecosystem and be used in agriculture. Also, other actions are battery recycling by placing bins in all its factories, recycling paper and use more electronic communication in order to avoid paper consumed, and the placement of integrated centres in key locations to collect all recyclable materials. Biogas production from anaerobic wastewater treatment makes it unique in Europe in the field of dairy industry (Olympus Milk Industry Larissas S.A. , Corporate Social Responsibility, n.d.), (Olympus Milk Industry Larissas S.A., Environment, n.d.).

2.10.14. Sergal S.A.

The company is certified for non-use of genetically modified raw materials and applies a quality management system and food safety management standard. It supplies its raw material from farmers that are operated in Serres, boosting the survival of the countryside. With the use of natural gas throughout the production process, it contributes to its carbon footprint reduction, ensuring environmental protection (Sergal S.A., n.d.).

2.10.15. Tyras Milk Industry S.A.

Tyras is certified and implements environmental management system which covers all the company's activities. It constantly is seeking new technologies, applying them to all process stages, with the aim of reducing waste. The innovative company's investment with the installation system for anaerobic treatment and recovery of waste water and the simultaneous production of biogas and sludge management through drying and combustion offers as environmental as energy benefits to the company. This method covers the needs of the factory fuel and saves the world's natural resources. Furthermore, recycling is another piece of the environmental policy of Tyras, applying

a systematic collection, sorting and disposal to recycling of solid waste. (Tyras Milk Industry S.A., Environmental policy, 2013)

2.11. Summary of sustainability and CSR practices of large and multinational enterprises

In this chapter of the thesis is summarized the sustainability and CSR practices based on the aforementioned collected information.

2.11.1. Sustainability and CSR practices of multinational global companies

Sustainability practices of multinational global companies	CSR practices of multinational global companies
<p>Current:</p> <ul style="list-style-type: none">• Reduced carbon footprint• Protect eco-system and cycles: collaboration with organisations, new farmers' tools, models and solutions• Eliminate deforestation for the supply chain• Recyclable materials/bio-materials• Reductions on waste for disposal, total water discharge, water withdrawal, direct Greenhouse (GHG) emissions• Increases on total on-site energy consumption and total production volume• Tool to measure environmental impact <p>Future:</p> <ul style="list-style-type: none">• Zero waste in all factories• Reduced water consumption	<ul style="list-style-type: none">• Partnerships with communities (farmers to stakeholders to consumers and everyone between)• Trainings to farmer's life• Eliminate child labour, build schools• Work with farmers in developing countries• Collaboration with external institutions• Offering job positions to the young people• Trainings employees about environmental awareness

2.11.2. Sustainability and CSR practices of multinational companies in Greece

Sustainability practices of multinational companies in Greece	CSR practices of multinational global companies in Greece
<ul style="list-style-type: none">• Production with the smallest possible ecological footprint• Renewable water use• Maintain the quality of raw material• Examine the long-term consequences of its activities	<ul style="list-style-type: none">• Support vulnerable group of people, children• Cooperation with university• Nutritional value/dietary guidelines to its products• Visits to schools & educational institutions, covering needs in diet/books/material/clothes, providing knowledge in nutritious issues• Provide nutritional education to its employees and external partners• Support organizations offering its products• Responsible disposal of baby milk in developing countries• Voluntary blood donation, collaboration with hospital• Provide employment• Encourage rational production• Support local communities

2.11.3. Sustainability and CSR practices of large Greek companies

Sustainability practices of large Greek companies

Current:

- Collection and recycling of recyclable materials and industrial products
- Recovery of thermal energy
- Use natural gas for reduced emissions
- Use of the sludge disposal in the agriculture for fertilizing crops, cooperation with municipality
- Inverters' installation for electricity
- Combined heat & power plant for energy supply and reduction of energy dependency from imported forms
- Quality assurance systems throughout the chain
- Management systems for solid waste , cooperation with company
- Investment in new technology
- Quality environmental management system, food safety, non-use of genetically modified organisms (GMOs)
- Biological treatment

Future:

- Increase recycling
- Reduce number of waste

CSR practices of large Greek companies

- Respect to the local communities
- Respect needs of consumers, employees, partners, suppliers
- Social charitable program for children's needs and life improvement
- Trust/reliable relationship with the consumers
- Responsibility for product's quality
- Job offers, students' internship
- Cooperation with recognised social agencies and organisations
- Support/partnerships with local producers, economic activity of the area
- Support sponsorships on annual basis cultural, athletic, educational, social activities
- Educational visits for pupils and students to the facilities
- Support families, institutions, nursing homes, rehabilitation centres, orphanages, municipalities, institutions, charities, non-profit organisations with its products
- Fight against the problem of malnutrition
- Inform the public on nutrition issues, cooperation with institutions
- Education of farmers on good hygiene and management of the animals
- Respect the rights and employees' personality
- Provide continuous training, encourage initiative
- Monitor nutrition and animal health with emphasis for grazing and its feeding with domestic natural feed
- Volunteering, blood bank

3. Dairy Sector Analysis

3.1. The dairy sector globally

Demand for dairy products is increasing worldwide because of urbanisation, income increase and demographic changes. However, demand is influenced by the political developments at the global level, reforms of industries, market access, food safety and sustainability. In terms of milk's pricing, it is directly linked to environmental conditions worldwide. More specifically, adverse weather conditions in the northern hemisphere and drought in New Zealand in 2013 limited the supplies which led to the price of milk to be increased, something that changed later when weather and feed costs improved. Although prices are unstable, investments in production and processing of milk are carried out (IDF, 2014).

In 2013, milk production was 782 million tons, having 1.3% increase than 2012. Next years, it is estimated that milk production will be increased. In 2013, the global population was 7.1 billion people, which means 109.6kg on average consumption of dairy products per person. However, the global population is estimated to reach 9 billion in 2050, leading to an increase in the dairy products consumption by 13.7% (IDF, 2014). However, in order to have an overall picture about the fluctuations of milk production worldwide, figure 8 is presented.

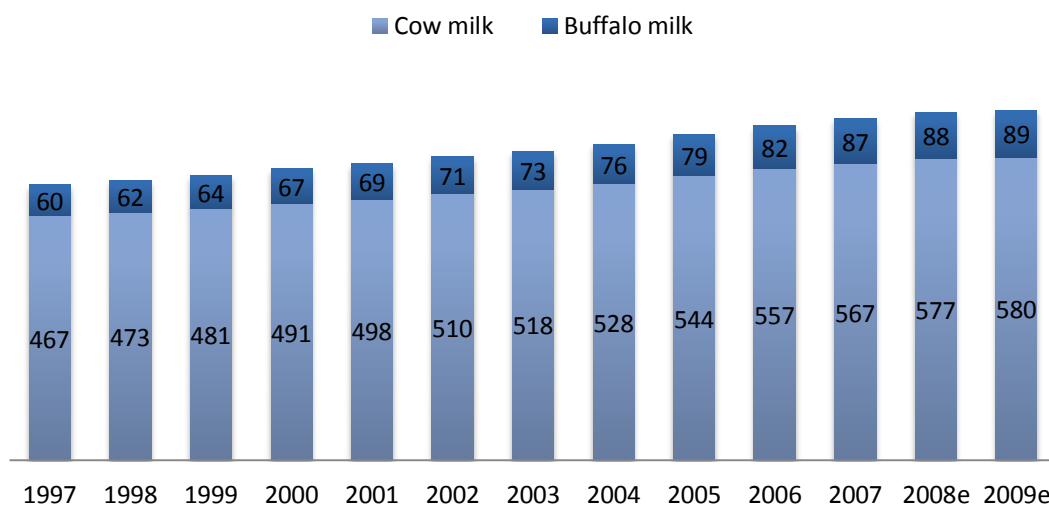


Fig. 8. World Milk Production (1997-2009) in million tons (Eucolait, n.d.), (IDF, 2014)

According to figure 8, the world milk production was estimated 695 million tons in 2009, which was 0.8% more than the previous year. In addition, the buffalo milk had an increasing growth rate, which was estimated at 87.5 million tons in 2008. Figure 9 shows the fast increase of buffalo's milk in contrast of cow milk. Buffalo milk covers a 13% of total world milk production, of which 90% is originated by India and Pakistan and with lower volume by Egypt, China, and Italy. The difference that buffalo milk has than bovine cows is the resistance in hot temperatures (IDF, The World Dairy Situation 2009, 2009).

Cow milk is the basic milk that is used in the milk production with more than 640 million tons in a global level in 2013 and after buffalo milk and other milk is following (IDF, 2014). According to figure 10, Asia is the first milk cow producer, owning the 28% of world milk cow production.

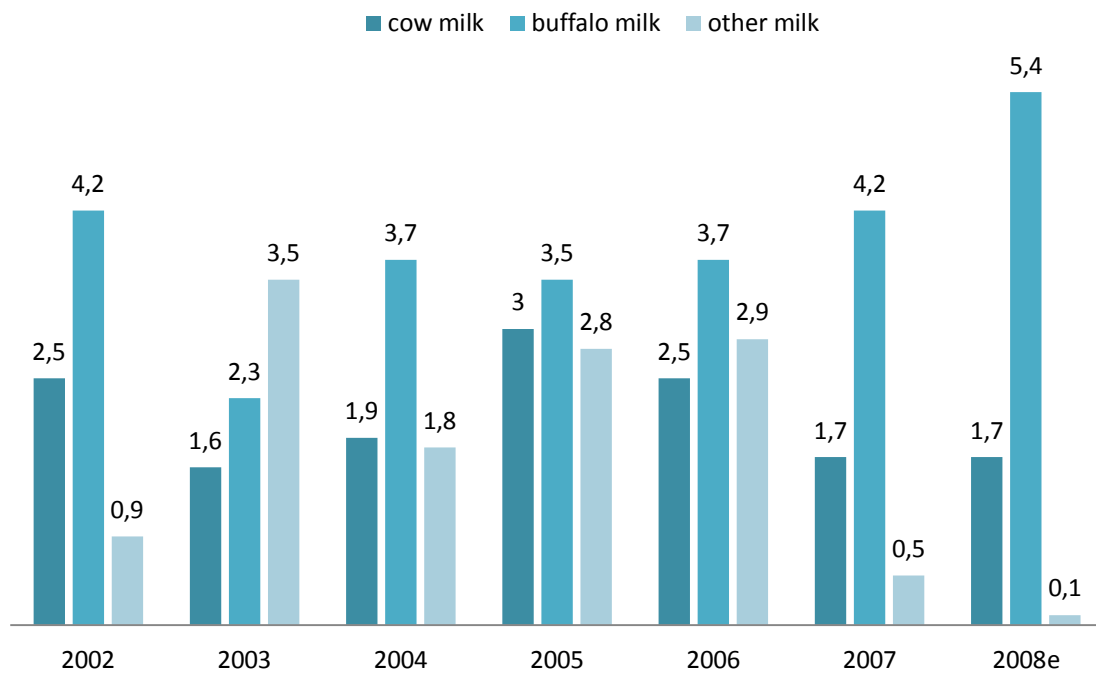


Fig. 9. Buffalo milk with highest growth rates in million tons worldwide (Eucolait, n.d.), (IDF, 2014)

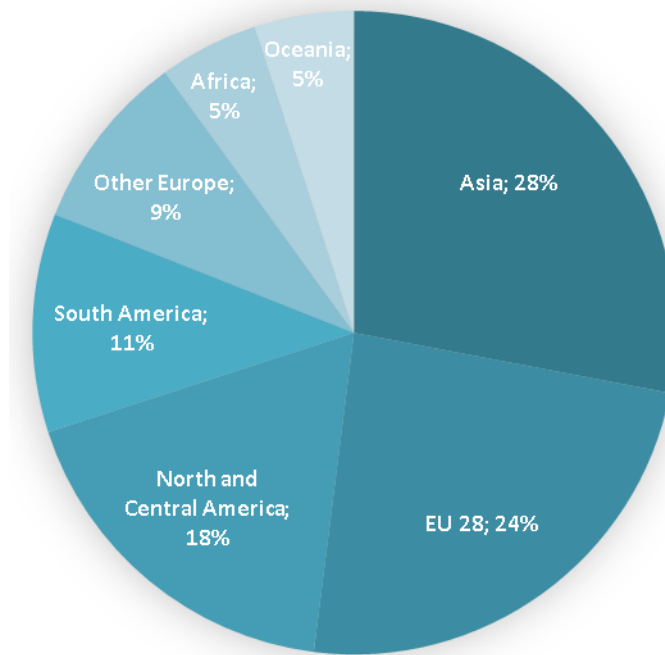


Fig. 10. World: cow's milk production (share per region) (IDF, 2014)

About milk processing, the cow's milk deliveries worldwide are following an increasing rate, which is formed in around 420 million tons in 2013 (IDF, 2014). The world five exporters of milk are New Zealand and EU 29 with more than 15 million tons in 2013. In addition, the dairy products, which possess the first and second position in the world trade, are the WMP (whole milk production) with more 2.4 million tons in 2013 and Cheese with 2.4 million tons the same year. After, the third and fourth positions are possessed by SMP (skim milk production) with around 1.8 million tons and butter/-oil with less than 1.2 million tons in 2013 respectively (IDF, 2014).

In South Africa the nutritional deficiencies are a serious problem that mainly poor people face. Milk and milk products can solve this issue, offering a balanced vitamin diet in affordable prices in order all the people to have access to them (IDF, 2013). Animal welfare is related with sustainable dairying, something that is not only improves cow welfare but also it contributes to better environment and people's health. *"Sustainable dairying means that businesses are economically, environmentally and ethically robust in the long term. This requires: a profitable business that enables sound livelihoods and all that comes from them, long-term approaches to sustainability-for future generations and as a platform for growth, protection of animal welfare, environmentally sound, efficient and minimised resource inputs, use and waste"* (IDF, 2013).

According to World Animal Protection, eighty food companies assessed on the practices that they implement in order to deal with farm animal welfare. The results indicated that many companies had a progress ranking in higher tier or had a start with the farm animal welfare, with Marks & Spencer, Waitrose and Coop Group (Switzerland) having the leading position. In addition, many companies from different sectors and countries are committed to the issue of animal welfare, give great importance to practices and management systems that they implement and they measure their performance. *“Companies have the power in their hands to transform the lives of billions of farm animals around the world”* and *“Consumers increasingly care about where their food comes from and are demanding a better life for farm animals”* (World Animal Protection, 2015).

The previous results are based on the Business Benchmark on Farm Animal Welfare report, which is the first global measure of animal welfare standards in food companies. The eighty global food companies that they participated were coming from three subsectors of food industry, the food retailers and wholesalers (26 companies), restaurants and bars (24 companies) and food producers (30 companies) from many countries. From the Netherlands four companies participated, which are Ahold (tier 3), Friesland Campina (tier 3), Unilever (tier 2) and Vion (tier 3). All these companies deal with farm animal welfare, they manage it as a risk for their business and they gain advantage over their competitors (Amos & Sullivan, 2014).

When consumers buy dairy products like cheese, ice cream and chocolate, they should think that the cows that produced the milk which is included in these products, have a good quality of life. Ensuring cows' access to pasture grazing with grass during the growing phase and the supply of improved conditions in dairy cattle in order problems such as mastitis and poor fertility to be prevented, are basic principles of organic dairy farming. Hence, organic products respect the animal welfare. Food companies can contribute to a better animal welfare, choosing supplier that respect animals (Compassion in World Farming, 2014).

A dairy farm has the highest environmental impact, based on measurements of Life Cycle Assessment (LCA) that is implemented by International Dairy Federation, 436/2009. More specifically, the environmental impact of a dairy product's life cycle from milk production to the end-of-life of the dairy product is very high. Climate change (greenhouse gas emissions), ecosystem quality, biodiversity, waste, human

health and resources (energy and water use) are the impact categories that the measurements were implemented. Due to the product of milk is caused 80% of the greenhouse gas emissions and due to the product of cheese 90% of the emissions. Nevertheless, there are projects and programs that contribute to an improvement in the environmental performance of dairy products life cycle. These actions are supported by governments, retailers or private organisations. However, most of these programs are focused on some stages of dairy products life cycle with less of these to cover the whole life dairy cycle. Figure 11 represents all the stages that are implemented in the dairy sector (IDF, Environmental / Ecological impact of the dairy sector: Literature review on dairy products for an inventory of key issues, List of environmental initiatives and influences on the dairy sector, 2009).

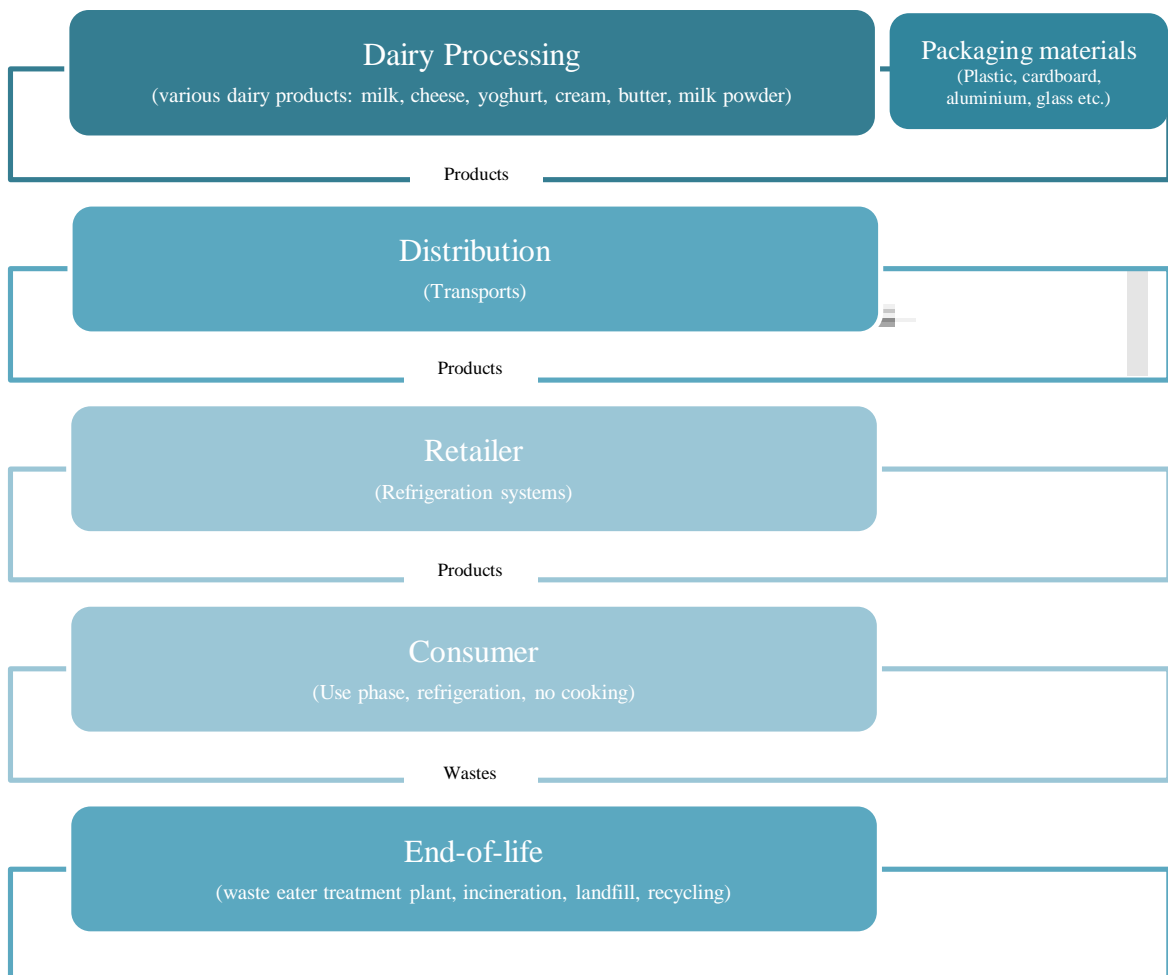


Fig. 11. Dairy Life Cycle (IDF, Environmental / Ecological impact of the dairy sector: Literature review on dairy products for an inventory of key issues, List of environmental initiatives and influences on the dairy sector, 2009)

.Based on the IDF research results, some recommendations are suggested for the dairy sector in order to reduce the environmental impact. Dairy farmers can change the diet of the cows using more organic and less fertilizers and pesticides. Also, anaerobic digestion can be used to convert manure into biogas, which can replace the use of fossil fuels. In addition, instead of artificial fertilizers, sludge can be used. Another suggestion is that dairy industry should implement quality-environment-security management (QES) into the process of dairy products. For example, the change in the order that the dairies are produced, starting first with the products that besmear less the machines in order to use short rinsing or no cleaning for the production of the next dairy product. This means that the losses product, losses water and use of detergent will be less, contributing to less environmental impact (IDF, Environmental / Ecological impact of the dairy sector: Literature review on dairy products for an inventory of key issues, List of environmental initiatives and influences on the dairy sector, 2009).

Moreover, there are many environmental initiatives that are taken place as for example the Sustainable Agriculture Initiative (SAI), which is founded by Danone, Nestle and Unilever. It is focused on cow and milk producers communicating the sustainable agriculture practices, giving their knowledge and experiences in order to manage the GHG emissions. Another initiative is the Sustainable Dairy Chain that is placed in the Netherlands, having as aim the production of dairy products with health and natural way, taking care about the society. The plan is that all the stakeholders, who participate in the dairy chain, to replace the energy with renewable in order to succeed lower levels of GHG emissions (IDF, Environmental / Ecological impact of the dairy sector: Literature review on dairy products for an inventory of key issues, List of environmental initiatives and influences on the dairy sector, 2009).

3.2. The dairy sector in the European Union

3.2.1. Dairy Products

Table 7 illustrates the fluctuations of dairy products in the countries of European Union during the last four years. Skimmed milk powder (SMP) had the huge growth during these years, reaching 32% increase in 2014. Whole milk powder (WMP) had also a big increase the range of 17.8% the same year. Butter, cheese and cream products had an increase trend during these years. However, the results were not the same for the

products of liquid milk, condensed milk and fermented products, which had a downward trend.

Table 7. EU Production of Dairy Products January-July 2014/13, 2013/12 and 2012/11 in 1000t (Eucolait, n.d.)

Products	January-July			July	October	December
	2013	2014*	14/13*	14/13*	13/12*	12/11
Liquid milk	19.413	19.405	-0,0%	+0,7%	-1,2%	+0,2%
Cream	1.492	1.592	+4,6%	+4,6%	-4,0%	+4,4%
Fermented Products	5.217	5.141	-1,4%	-2,4%	-2,5%	-1,4%
Butter	1.160	1.214	+4,6%	+8,0%	+6,4%	+1,2%
Cheese	5.114	5.186	+1,4%	+0,6%	+2,6%	+1,9%
WMP (whole milk powder) etc.	379	446	+17,8%	+9,1%	+8,1%	-4,2%
SMP (skimmed milk powder)	697	920	+32,0%	+28,8%	+16,3%	+2,0%
Condensed milk	514	496	-3,4%	-7,1%	-9,6%	-

*: Provisional

3.2.2. Milk Product

The overall milk production in the countries of the European Union had an upward trend, reaching the 5% increase during the period of 2013-2014. The biggest increase was observed in Romania, having 14.9% increase, with the second position to be covered by UK reaching a 10.2% increase, while Baltic States had the third position with 9.6% increase in milk production during the years 2013-2014. However, the Greek milk production had a downward trend (-4.8%) the same period in comparison with the years 2011-2012 (+4.0%) (Eucolait, n.d.).

More specifically, the overall cow's milk collection in the countries of the European Union had an upward trend, reaching the 5.4% increase during the period of 2013-2014. The biggest increase was observed in Slovakia having 62% increase, with the second position to be covered by Romania, reaching a 14.9% increase, after Latvia with 12.4% increase, while UK had the fourth position with 10.2% increase in cow's milk collection during the years 2013-2014. However, the downward trend was carrying on with 4.8% decrease the same period in comparison with the years 2011-2012 (+4.0%) (Eucolait, n.d.).

Table 8. EU Production of Drinking Milk January-July 2014/13, 2013/12 and 2012/11 in 1000t (Eucolait, n.d.).

Countries	January-July			November	December
	2013	2014	14/13	13/12	12/11
Austria	456.0	439.2	-3.7%	+2.3%	+2.3%
Belgium	446.3	443.5	-0.6%	+8.1%	+4.4%
Bulgaria	42.3	43.4	+2.7%	+3.7%	-1.8%
Czech Rep.	369.8	381.1	+3.1%	-14.2%	+15.5%
Germany	3,068.6	3,029.3	-1.3%	-2.0%	+0.3%
Denmark*	283.4	279.4	-1.4%	-0.8%	+6.1%
Estonia	50.0	52.2	+4.4%	+1.6%	-5.0%
Spain	2,109.2	2,060.1	-2.3%	-0.4%	-2.1%
Finland	421.1	423.3	+0.5%	-0.1%	+1.3%
France	2,123.1	1,974.5	-7.0%	+0.5%	+5.4%
Greece(*)	266.1	264.4	-0.6%	-0.3%	+0.2%
Croatia(*)	126.0	138.8	+10.2%	-31.4%	-
Hungary	233.9	257.2	+10.0%	+4.5%	14.1%
Ireland	287.2	287.1	-0.0%	-1.7%	-1.4%
Italy	1,465.4	1,479.9	+1.0%	-2.2%	-4.0%
Lithuania	56.8	58.0	+2.2%	+5.1%	+1.5%
Latvia	37.9	32.6	-14.1%	-1.4%	-1.4%
Poland	902.1	912.1	+1.1%	+5.0%	+4.0%
Portugal	518.2	511.6	-1.3%	-2.5%	+0.6%
Romania	125.5	147.3	+17.4%	+4.4%	-5.3%
Sweden	481.051	461.94	-4.0%	-2.6%	-2.0%
Slovenia	92.0	91.4	-0.7%	+1.5%	-2.6%
Slovakia	192.3	171.2	-11.0%	+1.6%	+7.1%
UK	4,037.7	4,186.9	+3.7%	+0.1%	-2.6%
EU-28	18,191.8	18,126.6	-0.4%	-0.7%	EU-27: +0.3%

However, the production of drinking milk in the most countries of the European Union was moved to low levels during the years 2013-2014 (Table 8). Nevertheless, the overall decrease illustrate that the downward trend had a bit improvement, while the

decrease was 4% in 2013-2014 than 7% in 2012-2013. On the other hand, the drinking milk's production presented an upward trend in some countries, with Romania to be in the first seat with 17.4% increase, Croatia in the second seat with 10.2% rise and Hungary in the third seat having 10% rise. Although, the period 2011-2012 the production of drinking milk was higher in Greece, the 0.6% decrease in 2013-2014 presented that the situation changed (Eucolait, n.d.).

3.2.3. Butter Product

During the years 2010-2014, the first butter producer, having more than 5 thousand tons production, was India. Second position had the European Union, having half quantity of butter production, while United States was the third butter producer worldwide the same years. In particular, the overall trend of the European Union countries was increasing by 3.8% in 2013-2014 and almost all the countries showed an upward trend compares with previous years. Characteristically, the three countries with the highest rise in their butter production were Estonia (+52.9%), Latvia (+38.2%) and Lithuania (+26.9%). On the other hand, Greece had a high percentage decrease in the specific product during the years 2011-2014. Moreover, the butter that the European countries produce distributed mainly in Russia (24.7%) and in the rest of the world (ROW 40.4%). Moreover, in the butter category products is included the Anhydrous Milkfat of AMF product. The European Union exports this product in countries such as Saudi Arabia (21.2%), ROW (20.8%) and Indonesia (13.5%) (Eucolait, n.d.)

3.2.4. Cheese Product

In comparison with butter product where India is the bigger producer, the bigger cheese producer is the European Union, offering more than 9 thousand tons in the market in 2014. The second cheese producer is the United States with 5 thousand tons. However, due to the high needs that US had in cheese products, it imported cheese from the European Union. So, the countries with the higher cheese imports in the US in the period 2013-2014 were with ranking Italy (14,980 tons), France (12,324 tons) and Netherlands (6,422 tons). Of course, remarkable cheese importers were also other countries of the European Union. Moreover, the cheese that the European countries produce distributed mainly in Russia (28.5%) and in the rest of the world (ROW 28.9) (Eucolait, n.d.).

Table 9. EU Cheese Production January-July 2014/13, 2013/12 and 2012/11 in 1000t
(Eucolait, n.d.)

Countries	January-July			November	December
	2013	2014	14/13	13/12	12/11
Austria	97.8	102.6	+4.9%	-1.8%	+3.8%
Belgium	45.6	51.8	+13.7%	+3.2%	-3.6%
Bulgaria	36.3	38.7	+6.6%	+15.0%	-10.2%
Czech Rep.	70.8	70.4	-0.5%	+5.9%	+0.9%
Germany	1,332.2	1,347.7	+1.2%	+0.5%	+2.0%
Denmark ^(**)	187.0	215.7	+15.3%	+6.8%	+10.2%
Estonia	24.9	23.3	-6.4%	+0.3%	+7.5%
Spain	85.0	85.5	+0.6%	+3.2%	+8.1%
Finland	60.2	62.5	+3.8%	-0.5%	-6.1%
France	1,072.3	1,036.1	-3.4%	+0.5%	-0.8%
Greece ^(*) ^(**)	16.5	15.1	-8.5%	-7.9%	-0.3%
Croatia ^(*)	19.3	18.3	-5.0%	+3.5%	-
Hungary	40.7	45.9	+12.9%	-1.0%	+11.2%
Italy	569.3	573.5	+0.7%	-2.8%	-1.8%
Lithuania	68.8	64.4	-6.4%	+4.5%	+12.6%
Latvia	20.7	19.1	-7.4%	+17.5%	+8.6%
NL	459.5	456.7	-0.6%	+4.0%	+1.8%
Poland	433.6	450.4	+3.9%	+2.7%	+5.6%
Portugal	32.3	33.1	+2.6%	-6.7%	+2.1%
Romania	38.0	40.1	+5.5%	+7.3%	+2.4%
Sweden	52.8	53.4	+1.2%	-12.3%	-3.9%
Slovenia	9.5	10.3	+7.8%	-9.7%	-3.5%
Slovakia	16.4	16.6	+0.9%	+1.2%	+4.5%
UK	229.1	243.6	+6.3%	-1.4%	+0.6%
EU-28	5,019	5,075	+1.1%	+0.8%	EU-27: +1.5%

According to table 9, there was a rise in the total cheese production in the European Union countries, reaching at 1.1% in 2013-2014, more than the previous year. Most of

the countries had an upward trend with Denmark, Belgium and Hungary to be the first countries with the higher percentage in the cheese production. In addition, the bigger players in the cheese production were Germany, France and Italy. On the other hand, the last years Greece follow a downward trend, with the decrease to be reached at 8.5% in the period 2013-2014.

3.3. The dairy sector in Greece

3.3.1. Milk as a commodity

According to FAOSTAT, milk consumption was ranked in the second position form a list of ten commodities that was consumed by the Greek consumers in 2011 (table 10). The milk consumption was 413 kcal per person per day, showing that milk products are preferred by the consumers. Moreover, Germany, Netherlands and France were the bigger importers of Greece offering together 3.2 million USD in 2011 (table 11). On the other hand, Germany, Italy and Bulgaria were the three bigger Greek exports (table 12). However, the majority of the Greek products that are imported and exported are non-food products. About dairy products larger numbers of them are imported than exported. In 2011, 133 thousand tons of cow milk were imported by Greece, classifying milk in the ninth place of top ten commodities imports. In addition, 543 thousand USD were the value from the importation of cheese of cow milk in 2011 (FAOSTAT, 2015).

Table 10. Top Ten commodities Availability for consumption 2011 (FAOSTAT, 2015)

A/A	Commodity	Quantity [kcal/capita/day]
1.	Wheat and products	863
2.	Milk-Excluding Butter	413
3.	Olive Oil	355
4.	Sugar (Raw Equivalent)	240
5.	Sunflower seed Oil	172
6.	Pig meat	135
7.	Potatoes and products	119
8.	Vegetables, Other	78
9.	Mutton & Goat Meat	69
10	Maize Germ Oil	68

Table 11. Top Ten partners Import value 2011 (FAOSTAT, 2015)

A/A	Partner	Value [1000 United States Dollar USD]
1.	Germany	1,161,675
2.	Netherlands	1,100,269
3.	France	956,109
4.	Italy	757,855
5.	Bulgaria	441,741
6.	Belgium	318,281
7.	Spain	303,526
8.	United Kingdom	289,759
9.	Denmark	198,260
10	Romania	167,233

Table 12. Top Ten partners Export value 2011 (FAOSTAT, 2015)

A/A	Partner	Value [1000 United States Dollar USD]
1.	Germany	770,589
2.	Italy	606,896
3.	Bulgaria	429,086
4.	United Kingdom	272,486
5.	Cyprus	269,043
6.	Turkey	242,266
7.	Netherlands	193,871
8.	United States of America	181,230
9.	Romania	166,146
10	Russian Federation	158,049

3.3.2. Domestic milk production

Milk from cow, sheep and goat is used in order the Greek dairy products to be produced. Cow's milk is the primary source of milk by which milk is prepared in Greece. However, it is needed cooperativeness between producers and processors, in order

producers to be more organized sharing actions and resources and processors to be coordinated. But, financial crisis has affected the whole milk chain, creating a difficult, inconstant situation for the country (IDF, 2010).

The domestic primary milk production is decreasing during the last years with the production of cow's and goat's milk have the largest decrease, while the production of sheep remains relatively constant. The bulk of production volume is covered by cow's milk (about 51%), which its production is constantly decreasing and its quantity was 18.0% less in 2013 than in 2006 (table 13).

Table 13. Domestic Milk Production (in thousand tons) (ELOGAK, 2014)

		Years										
Type of milk	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sheep's	352	412	416	460	506	516	498	530	552	521	497	520
Goat's	161	166	166	166	183	170	146	154	152	133	115	123
Total Goat's & Sheep's	513	578	582	626	689	686	644	684	704	654	612	643
Cow's	687	658	671	695	742	738	705	685	674	640	637	608
Primary Milk Production	1200	1236	1253	1321	1431	1424	1349	1369	1378	1294	1249	1251

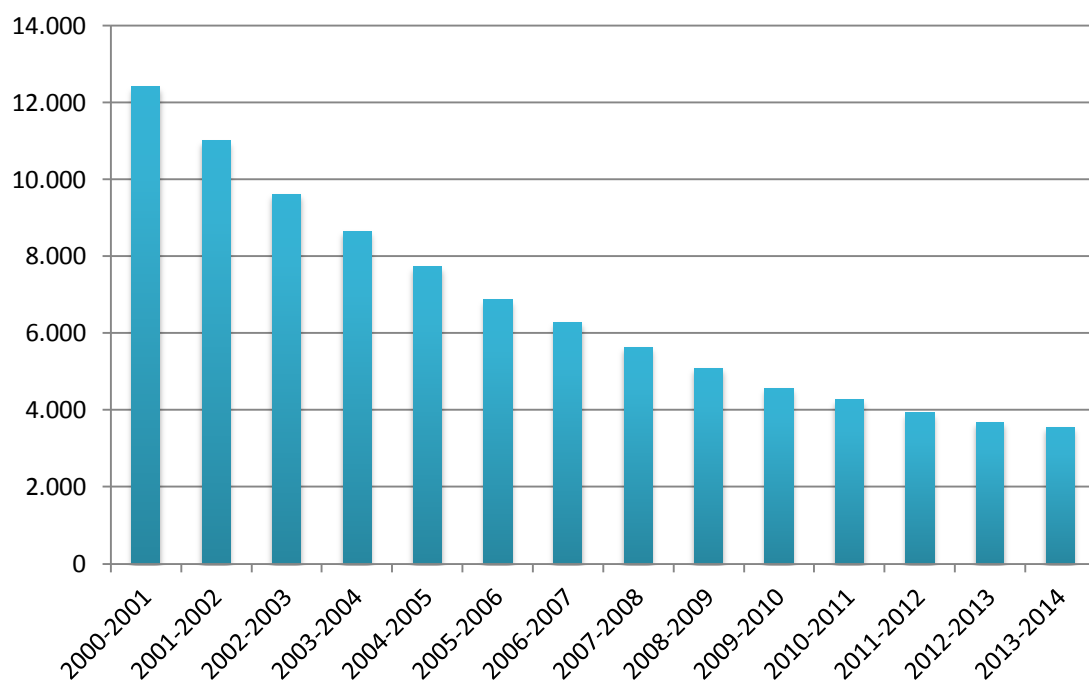


Fig. 12. Number of producers 2000-2014 (ELOGAK, 2014)

The total cow's milk production amounted to 608 thousand tons in 2013 was reduced in comparison with the quantity of 2014 that amounts to 607 thousand tons total. This disconcerting situation of the dairy sector is brought in an impasse many cattle farmers, who let the livestock because of the many difficulties in the dairy sector. The figure 11 presents the fluctuations of the milk producers during the last fifteen years.

According to ELOGAK, between 2013 and 2014 the total quantity of milk amounted to 613,318,222, while the total number of producers to 3,555. The figure 12 illustrates the quantity in kg as resulting from each producers group. For instance, the number of producers that they deliver less than 10 tons milk is 692.

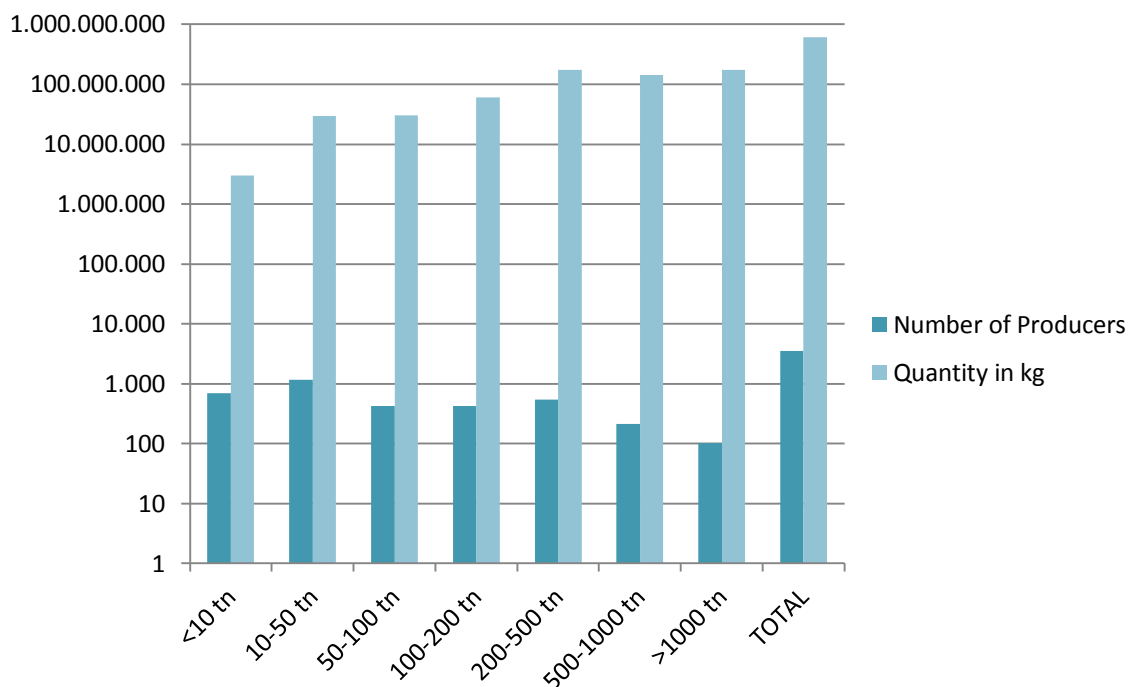


Fig. 13 Milk Producers and Quantity 2013-2014 (ELOGAK, 2014)

3.3.3. The Market

"The dairy industry remains one of the most resistant sectors of the Greek economy, as dairy products are included in basic diet foodstuffs for Greek consumers" (ICAP Group, 2014). According to the study, which was conducted by ICAP Group in the dairy industry, the domestic dairy market is declining. Specifically, the decrease observed in the categories of fresh (white) milk (-11.6% in 2013), long-life milk (-4.2% in 2013) and condensed milk (-22% in 2013). Conversely, an increase of 6.3% observed in 2013 in the high-temperature pasteurized milk, which the consumption was reaching

the 30.9% that year. To be pointed, consumers choose private label products (private label) of a specific category of milk. However, first choice for consumers is the fresh (white) pasteurized milk which in 2013 covered a 40.4% market share (ICAP Group, 2014).

Regarding yogurt products, consumers choose private label products (private label) yogurt, consumption which corresponds to 13% -15% of total yogurt sales, distributed through super markets chains. However, the total yogurt consumption was reduced in 2013 by 3.8%, with imports were moving in low levels, while exports were reaching 35% in the same year (ICAP Group, 2014).

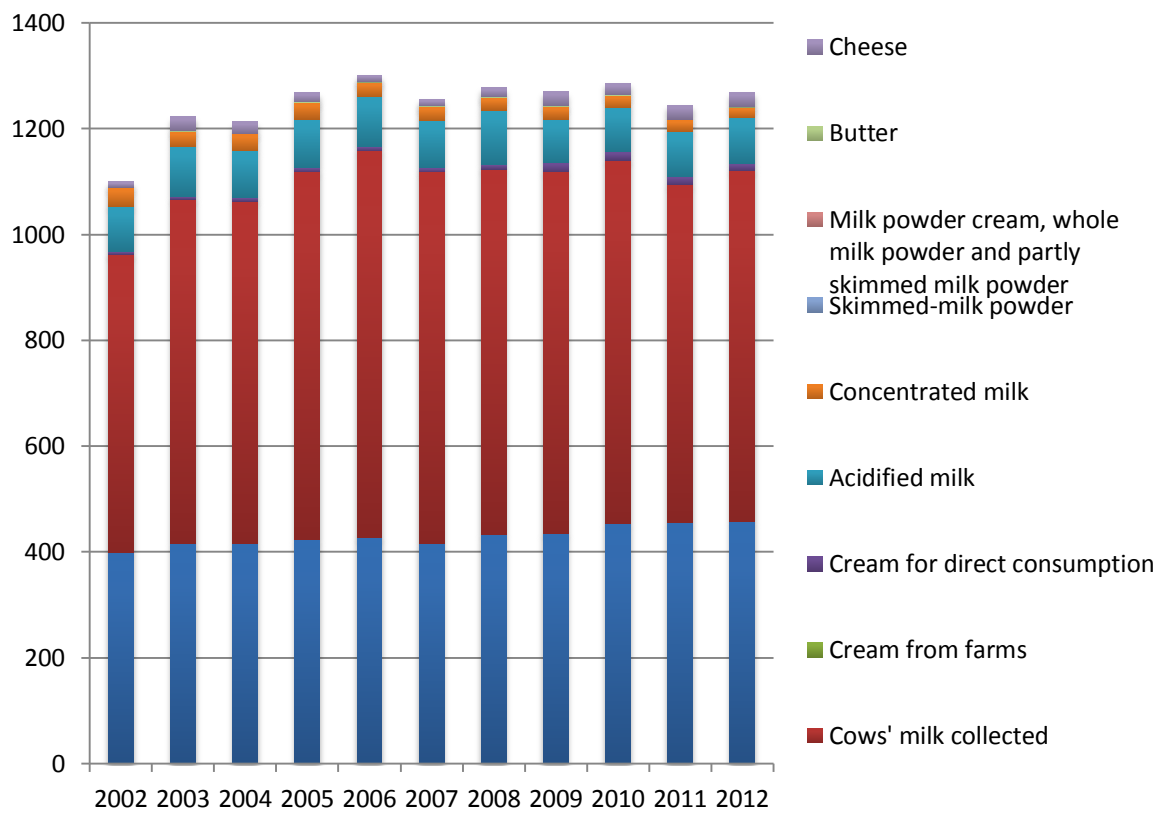


Fig. 14. Dairy Greek Products (2002-2012) in thousand tons (Eurostat, 2013)

However, according to the Greek Industry, the dairy production follows a continuous downward trend in recent years with the largest decline to be appeared in 2014. In particular, according to the Greek Statistical Authority's data, the decline in production of processed liquid milk was 0.5% the period January-October 2014 in comparison with the corresponding period in 2013 and 5.3% less from 2010. The same downward trend was followed by the production of dairy products, having a reduction of 3.9% in 2014 versus 5.3% in 2010, and the yogurt production fell by 4.3% in 2014 than 5.9% in 2010. However, growth was observed in ice-cream production by 3.5% in 2014 compared to

other milk products. Overall, the decline in production of dairy products stood at 2.4% in 2014 (inr.gr, Reduced production of milk products in 2014, 2015).

Moreover, in order to have an overall picture about the fluctuations of Greek dairy products during the years from 2002 until 2012, figure 14 is presented. However, this figure shows how the different dairy products are divided. Thus, the drinking milk occupies a good share, but the cow's milk collected occupies the bigger share of the dairy products (Eurostat, 2013).

3.3.4. Industries and Companies

The dairy sector includes large dairy companies which fulfil a large part of domestic demand in most product categories, affording as modern equipment as an organized distribution network that covers the entire country. However, the sector comprises many companies with low production capacity, mainly being active at local level with many of them have important positions in consumer preferences. Moreover, a small number of large import companies are operated in this sector, covering a wide range of dairy and cheese products in domestic market and which are under the umbrella known multinational groups. Also, several smaller companies are included in the import dairy sector, importing milk from which a significant part is related to products that are intended for professional use (ICAP Group, 2014).

According to the International Dairy Federation, in 2010, the main processors of dairy production were the companies Vivartia, Mevgal, Fage, Agno and Kolios. However, the financial crisis had led to a decrease in the cow milk prices (real fat and protein contents), which was formed in around 40 (EUR per 100kg) (IDF, 2010). Table 14 shows some financial figures of the first 20 large companies out of 129 Greek large companies, active in the dairy sector, as elaborated in the year 2013 (inr.gr, Reduced production of milk products in 2014, 2015). Appendix 8.2 consists the financial figures of all 129.

Dairy companies, which are presented in the table 15, belong to the list of 200 food industries that had the biggest sales in 2012. In the top ten are five large dairies, with Nestle to be in the first and Delta in the second place, Fage to be in the seventh, Mevgal in the eighth and in tenth place to be the Olympus. A total of 29 dairies stood out that are presented in the table based on their sales in 2012. Hence, it can be supported that these 29 companies are the bigger players in the market of the dairy products.

Table 14. Financial Figures of Greek Dairy Industries, 2013 (inr.gr, Reduced production of milk products in 2014, 2015)

Name	Total Assets		Sales		EBITDA	Net Profit
	(thousand euros)	±%	(thousand euros)	(thousand euros)	(thousand euros)	
1. DELTA FOOD PRODUCTS S.A.	368,301	-11	279,385	-2,405	-48,995	
2. FAGE MILK PROCESSING INDUSTRY SA.	202,064	-9	171,308	-2,798	-12,612	
3. TYRAS S.A. MILK INDUSTRY	157,181	-4	131,540	8,560	-1,673	
4. MEVGAL - MACEDONIAN MILK INDUSTRY S.A.	137,857	-24	143,334	-3,342	-14,890	
5. OLYMPUS MILK INDUSTRY LARISAS S.A.	134,560	-8	148,656	17,113	7,200	
6. DODONI – RURAL DAIRY INDUSTRY IPIROS S.A.	97,118	10	83,066	6,881	167	
7. KOLIOS GREEK MILK INDUSTRY S.A.	94,243	-5	78,278	5,793	1,806	
8. EVGA S.A. GREEK MILK INDUSTRY & FLOUR	76,943	-4	28,418	2,848	-1,667	
9. KRI - KRI MILK INDUSTRY S.A.	60,801	28	68,129	7,575	5,125	
10. LITTLE ACRE MILK FARM S.A.	41,080	42	45,770	2,451	1,190	
11. EVROFAPMA MILK INDUSTRY S.A.	40,570	-5	22,843	2,454	-475	
12. IPIROS S.A. MILK PRODUCTS	38,714	4	31,554	4,960	1,384	
13. BIZIOS S.A. MILK RPOCESSING INDUSTRY	27,640	4	21,931	1,586	5	
14. ICE-CREAMS DODONI S.A.	27,466	-8	10,915	-250	-2,810	
15. RODOPI – MILK INDUSTRY XANTHIS S.A.	26,858	-9	42,724	3,243	1,472	
16. BELLAS F. & SON S.A.MILK PRODUCTS	26,094	4	19,374	1,113	-986	
17. NEOGAL MILK INDUSTRY DRAMAS S.A.	24,906	6	16,826	2,285	1,375	
18. TORRE H. GLATZOYNIS S.A. ICE-CREAMS – FOOD PRODUCTS	22,098	11	20,555	3,692	2,345	
19. KOUKAKI FARM S.A. DAIRY PRODUCTS	20,948	6	18,422	2,654	237	
20. KARALIS MILK INDUSTRY IPIROS S.A.	20,534	8	22,510	1,881	856	

Table 15. The 29 Food Companies that operating in the dairy sector with the highest sales in 2012 (inr.gr, The 200 Food Industries - Agricultural Products with the highest sales in 2012, 2015)

Name	Sales			EBITDA	Net Profit
	2012	2011	±%		
	(thousand euros)	(thousand euros)		(thousand euros)	(thousand euros)
1. NESTLE HELLAS S.A. FOOD-DRINKS	434,489	424,988	2	62,543	15,421
2. DELTA FOOD PRODUCTS S.A.	281,568	284,164	-1	-7,308	-42,257
3. FAGE MILK INDUSTRY S.A.	173,156	201,046	-14	17,132	-3,010
4. MEVGAL MILK INDUSTRY S.A.	172,988	185,768	-7	3,340	-7,710
5. OLYMPUS MILK INDUSTRY LARISAS S.A.	151,207	141,641	7	7,960	180
6. TYRAS S.A. MILK INDUSTRY	128,911	134,088	-4	8,918	-278
7. KOLIOS GREEK MILK INDUSTRY S.A.	116,854	124,731	-6	6,820	44
8. DODONI – RURAL DAIRY INDUSTRY IPIROS S.A.	83,558	96,682	-14	7,492	348
9. AGNO MILK INDUSTRY S.A.	65,106	67,555	-4	-2,421	-7,699
10. KRI - KRI MILK INDUSTRY S.A	57,828	46,564	24	7,747	4,589
11. RODOPI – MILK INDUSTRY XANTHIS S.A.	39,525	32,412	22	2,422	47
12. LITTLE ACRE MILK FARM S.A.	35,985	26,689	35	3,465	1,764
13. IPIROS S.A. MILK PRODUCTS	33,632	32,780	3	4,939	1,381
14. EVGA S.A. GREEK MILK INDUSTRY & FLOUR	32,164	35,961	-11	-1,617	-10,293
15. VIGLA OLYMPUS S.A. DAIRY PRODUCTS	26,155	22,364	17	140	-733
16. EUROFEED S.A. FEED - DAIRY PRODUCTS	25,744	37,694	-32	555	55
17. EVROFAPMA MILK INDUSTRY S.A	24,357	29,379	-17	1,129	-2,600
18. TORRE H. GLATZOYNIS S.A. ICE-CREAMS – FOOD PRODUCTS	20,448	18,053	13	3,572	2,006
19. KARALIS MILK INDUSTRY IPIROS S.A.	19,135	19,267	-1	1,439	206
20. TRIKKI DAIRY INDUSTRY TRIKALA S.A.	17,331	16,730	4	1,335	-32
21. ROUSSAS DAIRY PRODUCTS S.A. CHEESE PRODUCTS	17,237	15,685	10	1,940	644
22. UNILEVER - KNORR S.A. FOOD & DETERGENTS	17,001	20,792	-18	3,499	656
23. NEOGAL MILK INDUSTRY DRAMAS S.A.	16,565	15,926	4	2,731	1,667
24. BIZIOS S.A. MILK RPOCESSING INDUSTRY	16,355	17,763	-8	1,234	-67
25. DELPHI S.A. DAIRY PRODUCTS	16,216	17,713	-8	349	44
26. BELLAS F. & SON S.A.MILK PRODUCTS	15,129	14,563	4	2,291	-99
27. EVOL-COOPERATIVE DAIRY INDUSTRY VOLOS	15,123	13,613	11	2,302	558
28. CHOTOS S.A. CHEESE PRODUCTS	14,689	12,666	16	1,157	674
29. KOUKAKI FARM S.A. DAIRY PRODUCTS	14,661	13,553	8	1,872	-269

3.3.5. Market shares

Dairy sector is one of the most competitive sectors of the Greek economy. Fage has the first position with 22% market share, Delta has the second position with 18% and in the third position is Olympus having 10% of the market share. Danone and Kri-Kri with 7% each, Mevgal with 6% and Friesland Campina with 3% are following in the market (Financial Press, 2014).

Fage is considered the strongest of the industry today, with presence in Greece and on abroad. The investment's plans in Greece aim to meet the expected increase in demand in international markets, having the benefit from the lower labour costs in the country. Apart from Greece, the dairy industry "runs" an investment program in the US to increase its productivity capacity in New York market. Fage was planning to have a new production line in 2014, producing double quantity (160 thousand tons per year) in order to cover the increasing demand for its Greek products in the US, where its sales volume was 69 thousand tons in 2013, four times more than in 2009. Although, Fage has a remarkable sales as in US as in Italy and United Kingdom, the situation is different in Greece with its sales to be decreased. Having an international presence in 40 markets, mainly with its yogurt product and sales up to 76.5% outside Greece, Fage aims to expand its market with also other products from its portfolio such as desserts, milk cream, cheese products and milk (Financial Press, 2014).

Delta (Vivartia's Group) has 26 production units in Greece, with presence in 29 countries. Its turnover was around 600 million euros in 2013, having EBITDA profit 14 million euros. However, the industry's debates for acquisition part of the Mevgal industry, lend a new advantage in the market since Mevgal has a significant market share in northern Greece. Its turnover was 173 million euros in 2012, having also damages around 8 million euros, while its 24% of its turnover is channelled to foreign market (Financial Press, 2014).

Moreover, other dairy industries are supported by their export activity. Epiros Cheese Company is supported by the exports, which contribute to higher sales for the industry at 16%, supporting the total sales. In 2014, its total sales were 34 million euros, having an increase around 9%. Epiros products are given out to 18 countries in 5 continents. Although, Epiros has a remarkable presence in the Greek industry and Greek

consumers, it started an export activity for further development (Financial Press, Epiros: Outside goes well, 2015).

However, apart from the big players, the market is covered by smaller production units of local farmers, showing with their presence that consumers support local products that they have high quality value. An example is the Movement of Livestock in Ioannina which is composed Thessalian farmers, producing local milk and yogurt with the brand “*Gianniotiko*” and selling them as in the local market as in regional areas. Also, this movements support the viability of the farmers’ production units (Financial Press, New brand in dairy products, 2015).

Therefore, there are Greek products that although their presence in the Greek market is not so notable, they have a remarkable presence in the international markets. One of these products is the Kefir product, which is not so prevalent in Greece and its market share is moving to low levels. It is known that Kefir has not Greek origin, but the indigenous people of the Caucasus countries and the Middle East consume many centuries now. It is about a complex mixture of symbiotic microorganisms and it can be produced by all types of milk (cow, sheep, goat, etc.), using kefir grains, a colony of friendly bacteria in appearance resembles cauliflower (Financial Press, Kefir: The next "trend" in the USA after the Greek Yogurt, 2015).

Kefir had stagnant increase sales in the USA, because it is ranked in the products with high nutritional value (proteins, vitamins, sugar free, excellent for diet and stomach because of probiotics). Lifeway Foods is the monopolized company that launches Kefir in the US market, having 92% market share in 2014, with estimation sales over 130 million dollars. Lifeway Foods keeps a huge variety of products and Kefir types also, including Greek Kefir in various flavours under the brand Helios. Moreover since 2013 it has placed products in the British market. However, a smaller company Latta launches Kefir in yogurt packaging, a non-fat product with probiotics product (Financial Press, Kefir: The next "trend" in the USA after the Greek Yogurt, 2015).

According to Business News, Delta, member of the Vivartia Group, Olympus, Sergal, Farm Koukaki, Neogal and Kri-Kri increased their share in 2013 in the category of fresh milk. In the category of high pasteurized milk, Olympus had the highest share in 2012 followed by private label products and then Friesland products. In table 16 the market shares are illustrated for 2012 and 2013. However, Mevgal’s market share was

decreased in the same period from 14.9% in 2012 to 11.1% in 2013. Similar were the results for the private's label products, which had lower market share 8.4% in 2013 in comparison with 10.6% in 2012. On the other hand, Friesland Campina keeps the bigger market share in the high pasteurized milk products, based on the table 17. However, the general trend is downward for the industries. Nevertheless, Olympus and the private's labels products had an upward trend. In particular, Olympus increased its market share from 15.7% to 17.4%, while the products with private label form 21.2% to 24.8% (Business News / Retail & FMCG, 2014).

Table 16. Fresh's Milk Market Share (Business News / Retail & FMCG, 2014)

Milk Companies	Years	
	2012	2013
Delta	29.4%	36.9%
Olympus	14.5%	15.9%
Sergal	2.75%	4%
Koukaki Farm	1.5%	2.4%
Kri-Kri	1%	1.2%

Table 17. High Pasteurized Milk's Market Share (Business News / Retail & FMCG, 2014)

Milk Companies	Years	
	2012	2013
Friesland Campina	25.9%	25.7%
Fage	9.2%	8.1%
Delta	19.2%	7.6%
Mevgal	3.1%	2.1%
Olympus	15.7%	17.4%

Therefore, the products, which are produced by these bigger companies, are analysed in order to have a clearer view about the kind of products that are included in the dairy market. The products will be collected by each company's/industry website.

3.3.5.1. Danone Dairy Products S.A. (Greece)

Responding to the needs of Greek consumers, Danone launched in 2007 in Greece the Activia based on a specific and unique recipe, which combines the advantages of a successful international brand, ideally suited to the Greek taste. The Activia belongs to a generation of dairy products with unique cultivation ActiRegularis™ and great taste. In Greece the Danone Dairy Products S.A. places on the market the products: *Activia* (yogurt dessert with microorganism ActiRegularis), *Actimel* (yogurt drink with microorganism L. Casei Danone and vitamins B6 and D), *Danonino* (infant milk dessert and beverage enriched with vitamin D and calcium), and *Danette* (desserts). It has also a range of yoghurts and desserts, the traditional dairy, and the kids' products Danone Disney (Danone Dairy Products S.A., Products, n.d.).

3.3.5.2. Delta (Vivartia) Food Products S.A.

DELTA is included in the Vivartia's network of subsidiaries with other two dairy companies, VIGLA OLYMPUS S.A., which produces cheese in the region of Ellassona and UNITED MILK COMPANY, which is the dairy market leader in Bulgaria. DELTA has a huge variety of milk and yogurt products for all the needs. However, it has only three products in the cheese category, but products from the subsidiary cheese company Vigla Olympus S.A. The categories of its products are milk, yogurt, cheese, dessert, infants and children products.

Some of the categories of milk products are fresh milk, high pasteurized milk, milk with high thermal processing, condensed milk, milk with 40% more calcium and vitamin D3, milk with fibres, goat milk, chocolate milk with in full fat 3.7% or light 1.5% and in many different packages 500ml, 1lt or 2lt. Delta produces also milk cream. In addition, yogurt products include different style of yogurt like double strained and strained, with fruits or not, creamy texture or not, in 2%, 3.5% and 10% fat, in small packages of 200gr or in family packaging of 1kg. Feta and Kaseri are the cheese products of Delta. Therefore, it produces dessert products with different flavors and many products for infants and children (Delta (Vivartia) Food Products S.A., 2012)

3.3.5.3. Dodoni – Rural Dairy Industry Epirus S.A.

Dodoni has many dairy products in the categories cheese (feta, hard cheeses-graviera, kefalograviera, kefalotyri and myzithra and soft cheeses-anthotyros and fresh myzithra,

galotyri P.D.O.) yogurt (cow, sheep, strained), milk homogenized, pasteurized, butter melted and other products. There are many different styles of all the products, different fat and many different packages (Dodoni – Rural Dairy Industry Epirus S.A., 2015).

3.3.5.4. Fage Milk Processing Industry S.A.

FAGE has many categories of dairy products and each category has a huge variety of products in order to cover the basic needs of a wider range of consumers. The categories of its products are yogurt with different styles like strained yoghurt, with flavors, for children like *Junior*, milk and milk cream, cheese products like kefalotyri, graviera, cottage cheese, gouda, edam, milk desserts and kind's products with more vitamins and minerals, homogenized and heat treated like cocoa milk. There are many different styles of all the products, different fat and many different packages (Fage Milk Processing Industry S.A., 2015).

3.3.5.5. Friesland Campina (Nounou)

In Greece Friesland Campina Hellas essentially coincides with Nounou products, which for more than 80 years cover the daily nutritional needs of the Greek family. Today, the company has a complete range of all dairy product categories, including infant milk and cream, evaporated and high pasteurized milk, yoghurts, milk cream and cheese products under the brands, NOUNOU, FRISO, MILNER and FINA. Meanwhile, it distributes products for professional use under the brands FRICO, DEBIC, FRISIAN COW, SMALL DUTCH and FARM (Friesland Campina (Nounou), Products, 2014).

3.3.5.6. Kolios Greek Milk Industry S.A.

Kolios has a huge variety of cheese products and many yogurt products. The cheese products are: feta P.D.O., goat's cheese, homemade cow's cheese, bio-organic cheese, other white cheese (anthotyro, manouri P.D.O.), kasseri P.D.O., hard cheese (graviera, kefalotyri, Byzantines), semi-hard (traditional Kolios and Polykastrou), other cheese (sachanaki, spageto club, korona club, pasture hard, pasture semi-hard, gouda club, edam club, gouda gold, edam gold) reduced fat cheeses, products for professional use (milk, milk cream and fresh myzithra), cheese with vegetable fats and omega 3, authentic Greek yogurt. There are many different styles of all the products, different fat and many different packages (Kolios Greek Dairy, Products, 2013).

3.3.5.7. Koukaki Farm S.A. Dairy Products

Koukaki farm has a huge variety of products under the strictest European Union quality standards and in accordance with international certifications standards. Choosing Koukaki's farm products, consumers can be assured of excellent quality, because all are made with pure, fresh milk. In addition, consumers have the chance to enjoy authentic with traditional taste products, especially now that the modern lifestyle has moved away from the traditional values of food. The milk category has the variations of fresh, chocolate, ariani-kefir (fermented milk and the yogurt category has the variations of cow, strained, traditional). In addition, it is produced traditional dessert like rice-pudding, vanilla and chocolate cream, cheese such as feta P.D.O. and hard cheese, butter (cow, melted) and catering products (cow and sheep milk, cow and melted butter, strained yogurt and feta cheese). There are many different styles of all the products, different fat and many different packages (Koukaki Farm S.A. , 2010).

3.3.5.8. Kri-Kri Milk Industry S.A.

Kri-Kri has a huge variety of ice-cream products and it also produces yogurt and milk products. Ice-cream products is divided in many categories, which are sticks, cups, kids, cones, sorbet, sandwiches, bars, family packs, premium, multipacks, the catering category, bulk ice-cream category, mini ice-cream and gluten free. The yogurt category includes strained yogurt, yogurt with fruits, kid's yogurt, spitiko, traditional, yogurt dessert and yogurt with gluten free. The milk category includes the white milk, the chocolate milk and the Ayrian. There are many different styles of all the products, different fat and many different packages (Kri-Kri Milk Industry S.A., Products, 2014).

3.3.5.9. Mevgal Milk Industry S.A.

Mevgal has many categories of dairy products and each category has a huge variety of products in order to cover the basic needs of a wider range of consumers. It offers a superior quality product, with responsibility and sensitivity. The categories of the products that Mevgal produces are milk like fresh, high pasteurized, evaporated milk, Ayran, Kefir, Long-Life U.H.T. (ultra high temperature processing), yogurt like traditional, strained, with fruits, cheese products like feta (P.D.O.-protected designation of origin), goat, sheep, crème desserts, manouri-P.D.O., dry mizithra, cottage, traditional kasseri P.D.O., graviera, kefalotyri, gouda, edam, desserts like rice pudding,

probiotics like kefir, functional yogurt with B.Bifidus cultivation, dairy crème and tzatziki. There are many different styles of all the products, different fat and many different packages (Mevgal Milk Industry S.A., Products, 2015).

3.3.5.10. Nestle Hellas S.A.

Nestle has a portfolio of products with strong brands all over the world. About the dairy products that it produces, baby products like Junior and Neslac, chocolates like Kit Kat and Nesquik and ice-creams like Boss and Nirvana are included in this category (Nestle Hellas S.A., 2015).

3.3.5.11. Olympus Milk Industry Larissas S.A.

OLYMPUS has many categories of dairy products and each category has a huge variety of products in order to cover the basic needs of a wider range of consumers. The categories of its products are milk like fresh, pasteurized, ariani, kefir, chocolate, goat, lactose-free, high thermal processing, milk cream, yogurt like cow, traditional, strained, goat, with probiotics, cheese products like feta P.D.O., kasseri P.D.O., soft, semi-hard, hard, whey products-anthotyro biological products (milk, yogurt, kid's milk drink, cheese), butter (cow, melted), foodservice products (fresh milk, cow's butter, melted butter, milk cream) and products with lactose free as milk, strained yogurt and cheese. There are many different styles of all the products, different fat and many different packages (Olympus Milk Industry Larissas S.A., 2012).

3.3.5.12. Sergal S.A.

The Sergal S.A. is the first dairy industry in the county of Serres and on of the most emerging ones in central Macedonia. It produces milk (fresh, chocolate, Ariani) and yogurt products, drawing raw materials exclusively from the rich plains of Serres, paying special attention to quality assurance and promoting the development of the county (Sergal S.A., n.d.).

3.3.5.13. Tyras Milk Industry S.A.

The TYRAS has a large collection of products, from milk (high pasteurized, long-lasting), cheese (P.D.O.-feta, kasseri, white cheese, hard cheese-graviera, kefalotyri, semi-hard, why products-myzithra, anthotyro) yogurts (strained, cow) delicacies (cheese and yogurt with non-fat milk) and milk cream, giving unique enjoyment to its

consumers. There are many different styles of all the products, different fat and many different packages (Tyras Milk Industry S.A., Products, 2013).

3.3.6. Cheese Industry

The sector of dairy products is a traditional area of activity, which occupies an important position in the field of dairy products, and in the wider food industry. In Greece it developed as an organized industry in the early 20th century, when the family businesses became large production units and gave industrial character to the sector with the implementation of pasteurization, the emergence of European-style yogurt, desserts, manufactured milk and tuple products that are flooding the shelves of food stores (ICAP Group, 2012).

Over the years the industry has made significant development while increasing the degree of industrialization. The granting of investment incentives from the state and financial institutions under development laws and EU regulations conducted to it. A large number of companies are operating in this industry, the majority of which are small units mainly size and capacity, i.e. small craft businesses and farms, serving mainly local, traditional products. The large production units cover a significant part of the domestic market (consumption). These units have a wide product base and modern equipment which renews having significant funds. Also, through organized and wide distribution network, they have managed to cover most of the Greek territory, while several have developed a significant export activity. The import companies are many, directly or indirectly associated with multinational and featured by brand products, which are mainly intended for professional use e.g. in catering companies. Even, some of them act as distributors of products of smaller companies, especially in the category of semi-hard cheeses (ICAP Group, 2012).

Moreover, the industry operates under stringent law's provisions to quality and hygiene products, while heavily influenced by trends that dominate in the wider dairy industry. Large companies follow modern quality assurance standards (HACCP, ISO, Agrocert) in their production process. However, some smaller businesses, unable to be adapted to the requirements of current legislation and EU directives, ceased operation in recent years (ICAP Group, 2012).

The main distribution channels for dairy products are: super markets' chains, local super market, grocery stores (Food Channel), feed and food companies (Business

Channel). The distribution of dairy products becomes mainly through supermarket chains, where there is intensive competition between brand products for better placement on the shelf. Large companies have their own distribution network with national range and have dealers and wholesalers for remote areas. Unlike small businesses provide their products either directly in their stores, either locally or from their storage area directly to customers. Also, they have cooperation with dealer networks, middlemen and wholesalers for the rest Greece. Regarding cooperatives, they provide their products either in super market of their area or through wholesalers and dealers in other areas (ICAP Group, 2012).

An important role in this sector has the advertisement, with advertisement's expenditure to follow an upward trend in recent years with the higher amounts to be directed to television, magazines and radio. The advertisement contributes to the communication of industrial companies' brand and is mainly carried out by large companies. Even the advertisement concerns mainly European products such as type Gouda, feta, white chesses except feta and soft cheeses (ICAP, 2006).

The cheeses, according to the type of milk that is used for the preparation, are distinguished in cow, sheep, goat, buffalo, etc. and depending on the moisture that their mass contains into very hard, hard, semi-hard, soft and fresh cheese. Another distinction of the cheese is low-fat, light and full fat, depending on the fat content and in fresh and mature according to the maturation time. There are other criteria by which cheeses are categorized, such as organoleptic characteristics, manner of use, technical characteristics and further subdivision into normal, reprocessing or molten and traditional Greek cheeses (ICAP, 2006).

In the dairy products' market, feta and white cheese (industrial grade) occupy the first place, until 66% of the total production. Then hard cheeses follow with a share to 16.7%, soft - fresh cheeses with a share to 14.4% and finally the semi-hard cheeses with share to 10.4% (1993-2005). These products are available as in bulk as in a standardized format with the supermarkets to enrich continuously their shelves with standard products. In Greece apart from the wide variety of domestic cheeses, imported varieties are also available, which have penetrated in the market, rival the domestic. In particular, the period 1998 -2005 imports accounted around 29% of the total market size. However, a significant proportion of imports intended for professional use (catering companies,

catering), while several large companies proceed to imports in order to enrich the range of their products (ICAP, 2006).

It should be noted that the Greeks have the highest per capita consumption of dairy products in the European Union, which is corresponded at 3.5 kg on average per household per month (especially soft cheeses). Also, the average monthly cheese expenditure reach at 8.3% of total food products, while households of suburban areas have the biggest monthly consumption expenses (ICAP, 2006).

As it is seen at Table 18, the number of Greek companies that are active in the production of dairy products was formed (in 2009) 605 enterprises, most of which (340) is small (annual production of less than 100 tons). Only three firms had annual production of more than 10.000 tons (ICAP Group, 2012).

Table 18. Production enterprises of dairy products in Greece based on its annual production (2006, 2009) (ICAP Group, 2012)

Annual Productions	2006	2009
Less than 100 tons	342	340
101-1.000 tons	233	229
1.001-4.000 tons	24	29
4.001-10.000 tons	2	4
10.001-15.000 tons	3	1
15.001-20.000 tons	3	2
More than 20.000 tons	0	0
Total	604	605

The total domestic production of cheese illustrated also in Table 19, in general upward trend between 2006 and 2011, with the total domestic production to reach at 287 thousand tons, remaining at the same level in comparison with the previous year. The production of dairy products by the industrial enterprises has been steadily raising in recent years, with production through agricultural exploitations shows annual fluctuations (ICAP Group, 2012).

Table 19. Domestic cheese production by industrial enterprises and agricultural exploitations (2006-2011) (ICAP Group, 2012)

Year	Industrial Enterprises (in tons)	Agricultural Exploitations (in tons)	Total (in tons)	Change
2006	*170.000	70.100	240.100	1,35%
2007	188.515	67.000	255.515	6,42%
2008	186.189	79.000	265.189	3,79%
2009	195.265	73.800	269.065	1,46%
2010	208.415	78.200	286.615	6,52%
*2011	210.000	77.000	287.000	0,13%

Table 20 includes the total domestic (apparent) consumption of dairy products (in quantity) in the period 2006-2010 which showed an increase. Apparent Consumption is calculated as Consumption= Production + Imports – Exports. Specifically, in 2010 the domestic consumption stood at the level of 362 thousand tons, increased by 2.7% compared to 2009. However, in 2011 the domestic market decreased by 2.8% compared to the previous year (ICAP Group, 2012).

Table 20. Domestic (apparent) consumption of cheese products (1993-2011) (ICAP Group, 2012)

Year	Production (in tons)	Imports (in tons)	Exports (in tons)	Apparent Consumption (in tons)	Change
2006	240.100	96.811	31.280	305.631	2,3%
2007	118.245	118.245	39.875	333.885	9,2%
2008	112.494	112.494	41.360	336.323	0,7%
2009	125.015	125.015	41.654	352.426	4,8%
2010	188.665	118.665	43.247	362.032	2,7%
2011	113.884	113.884	49.025	351.859	-2,8%

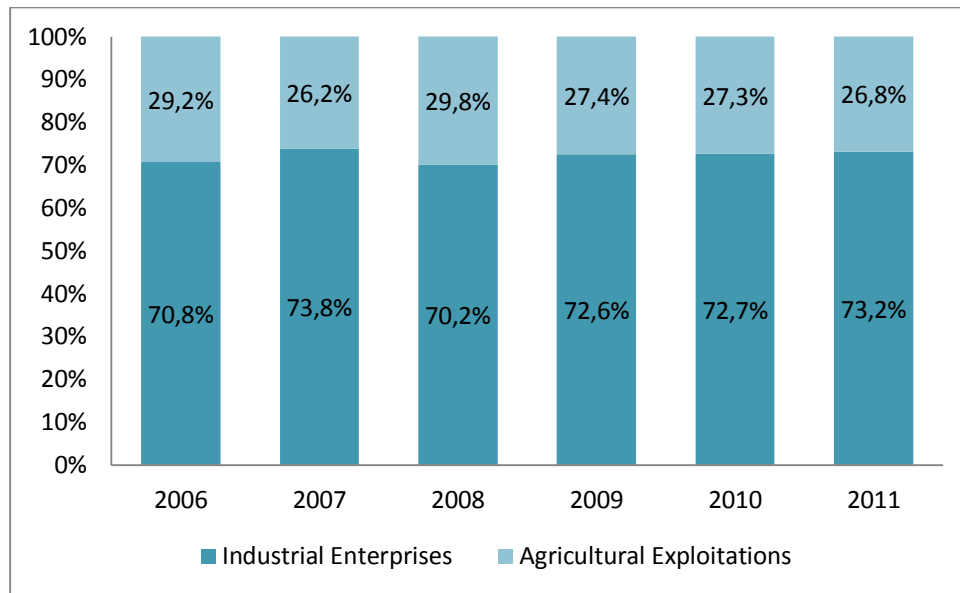


Fig. 15. Production of cheese from industrial enterprises and agricultural exploitations (2006-2011) (ICAP Group, 2012)

Dairy products are considered a "mature" market in our country and are a staple in the daily diet, without being observed significant changes from year to year. However, according to market factors, the sustained economic recession and the flow market problems do not leave any industry unaffected. The shrinkage of consumers' disposable income restricts their markets (even basic foodstuffs) and turns portion of consumers to cheaper products (e.g. white cheese against yellow, private label products against brand products) (ICAP Group, 2012).

According to the analysis of cheese sector, the Greek market is fragmented with the companies to receive small share of the total domestic consumption. The last five years the production of the cheese is increased with 3% annual rate. Therefore, the export activity of the sector is increased with 5.3% annual rate between 2007 and 2011, reaching the highest levels of the last twenty years. In contrast, import activity had 9% decreases the last two years. However, the import penetration of the cheese products has high levels in the market, while Greek cheeses are dominated in the internal demand. Moreover, the major part of the domestic consumption and export activity is covered by the soft cheeses, mainly feta cheese (ICAP Group, 2012).

Last, but not least, many questions are surrounded the issue of dairy as how much milk is going to be produced in 2016 worldwide and in Europe. The trend that dominates between 2011 and 2016 is the medium-term milk production and utilization. However, this period is forecasted that the milk will be more 2.6%, India and China will be the

countries with the higher growth and US and EU the countries with the high exportation. In addition, it is forecasted that in 2016 the number of the dairy farms is going to be decreased in Europe, concentrating the farms in order to be more effective. However, in countries like New Zealand, Indonesia and Saudi Arabia there will be a continued growth. Moreover, the areas around the Atlantic are in recent years attracted to the milk produced. The reason is because these areas have large tracts of land that can be offered for grazing. So apart from the benefits earned by those regions, the milk is produced at a lower cost than it happens with the intensive farming (Lafougère, 2012).

In 2016 the collected milk will be more in comparison with 2011 with Ireland (+1.4bn kg), The UK (+1bn kg), France (+1.4bn kg), The Netherlands (+0.7bn kg), Germany (+2.2bn kg) and Poland (+0.4bn kg) to collect more billion Kg of milk. Butter, cheese, whey, SMP, WMP products will have an increased production between 2011 and 2016 with cheese to has the majority of the production. But the world demand will be dealt only by a small number of producers. Functional food such as proteins WPC / WPI from whey and food for children will have a high demand in the future. Whey powders are mainly consumed in Asian countries, with China to be in the first place. However, the whey production cannot cover the huge consumption (Lafougère, 2012).

The things change rapidly. The trade of dairy products is growing internationally, creating development of imports and exports, constantly seeking to combine high added value and low cost. Therefore, the continuous increase in the demand of whey powders except for the profits that are offered to the dairy industries, create a tendency towards cheese choice for "artificial" reasons (Lafougère, 2012).

4. Methodology

Following the analysis of the previous chapters, the importance to cover the aforementioned topics was identified. It is also evident the shortage of information regarding small and medium enterprises in the dairy sector in Greece and the unavailability of retrieving valuable data regarding their sustainability and CSR practices by any other means. Therefore, and by taking also into account the nature of the topic, a preliminary qualitative data collection research method is selected based on interviews by framing them in terms of sentences and opinions, without the use of numbers.

More specifically the method followed to access the answers of our research questions is the conduction of semi-structured interviews. Semi-structured interviews is chosen in order to cover the main topics of the study and provide a mechanism for some comparisons along the interviewees' statements (Wilson, 2014). In addition, in order to gain deeper knowledge in specific parts of interest, unstructured open-ended questions are also asked to the interviewees based on specific criteria e.g. interests, expertise etc. of the respondent. Upon agreement with the majority of the respondents company names are published in this thesis.

4.1. Interview topics

This subchapter consists of the topics investigated during the field survey. As a starting point, the general characteristics of each company are explored by examining among others the consistency of companies' employees' number in order to identify if they belong in the level of small and medium enterprises. Additionally, the complicated role of sustainability and the vagueness of CSR consist as interview topics, with focus on how the management team of the companies understand the concepts of sustainability and corporate social responsibility, and what kind of actions perform in this context. In addition, the role of actors, the relationship of each company with them and the communication strategies are selected, because their role is crucial in the success of sustainability and CSR implementation, as emphasized in the literature. The interview topics along with the respective questions are located in the chapter 8.1.

4.2. Selection process of the interviewees

As discussed before, the shortage of public information of small and medium enterprises, as opposed to large and multinational enterprises that employ a more

comprehensive organisational structure is the main reason that this field survey is exclusively focused on small and medium enterprises. Based on the above the first criterion for the selection process is that companies' number of employees do not exceed the 250 employed people, as the European Commission defines (European Commission, What is an SME?, 2014). Furthermore, selected companies should belong to the dairy sector exclusively and produce dairy products in Greece. Additionally, the respondents in the interviews are managers or experts belonging as high in the hierarchy within the company as possible with exceptions in the case of an individual that was obviously the superior expert. Finally, because of high interest for the role of actors an expert in the field is chosen based on his ability and expertise to respond on specific aspects dealt in this study.

4.3. Interview data analysis process

This specific subsection has to do with the process followed for the analysis of the received interview data. The analysis has been structured as follows; from the given responds the identifying sustainability practices and CSR actions of small and medium enterprises are grouped together. As a next step the group of these actions come together with the literature findings for the large and multinational enterprises in an assiduous comparison. In addition, the above two-step process is followed and for the comparison of the communication strategies. As a matter of fact the different companies' typologies are also taken into account compared with their respective sustainability and CSR actions in order to identify the potential correlation between them.

5. Results & Discussion

5.1 Interviewed Companies

The companies that participated in the survey are alphabetically:

- *DAFNI*
- *Dairy Laboratory Agricultural University of Athens*
- *Divanis Thessaly Trikala S.A.*
- *Pagonis Sisters & Co Dairy Products*
- *RODI FOOD Ltd.*
- *TEMPI Greek Dairy Products*
- *X micro company* (The company's name is not disclosed, due to owner's request)

In particular, the interview procedure was implemented via telephone and via Skype with the manager of each company. More specifically, interviews were conducted via skype with the following companies:

- *DAFNI*
- *Dairy Laboratory Agricultural University of Athens*
- *RODI FOOD Ltd*

and via telephone with the following companies:

- *Divanis Thessaly Trikala S.A.*
- *Pagonis Sisters & Co Dairy Products*
- *TEMPI Greek Dairy Products*
- *X micro company*

In addition, an interview via telephone was conducted with an informal type of organization, named *Solidarity for All*, in order to further assess the results obtained from the companies.

5.2.1 Characteristics of the company

Regarding the general characteristics of each company, all the managers of the companies have higher studies either around agronomy, chemistry, biochemistry or around technology and economy or around the cheese making. Moreover, three out of seven have postgraduate studies either around food or around administrative studies.

Some managers have work experience either around dairy or around the microbiology and biochemistry of milk.

The following table presents the participating companies in the survey, how many people they employ and how many years they are responsible for the company.

Table 21. List of the participating companies

Name	Years	Number of employees
<i>DAFNI</i>	5	12
<i>Dairy Laboratory Agricultural University of Athens</i>	5	15
<i>Divanis Thessaly Trikala S.A.</i>	17	45
<i>Pagonis Sisters & Co Dairy Products</i>	20	15
<i>RODI FOOD Ltd.</i>	2	7
<i>TEMPI Greek Dairy Products</i>	10	10
<i>X micro company*</i>	7	3

*: The company's name is not disclosed, due to owner's request.

Regarding the products that the examining companies produce, some of the companies only produce dairy products like traditional sheep yogurt, creams, rice pudding, ice cream, butter, while others focus only on cheese like feta cheese, graviera, kefalotiri, myzithra, anthotyro, haloumi cheese, and goat cheese. Also, one of the companies produces a wide range dairy and cheese products. However, a company is engaged with the marketing and packaging of cheese products from all over Greece.

Moreover, the companies *DAFNI*, *Dairy Laboratory Agricultural University of Athens* and *X micro company* stay mainly locally, having from none to very little mobility in other regions of Greece, having collaboration with cheese shops/grocery. The companies *Pagonis Sisters & Co Dairy Products*, *RODI FOOD Ltd.* and *TEMPI Greek Dairy Products* have either small or larger export in countries of Europe, America, either with unique product or larger range of products. However, *Divanis Thessaly Trikala S.A.*, despite its mobility in Greece and on abroad, has no mobility at local level.

Apart from the companies, *Solidarity for All* is presented. It is about an informal type of organization that operates under the values of solidarity, equal relationships for all, collectivity and different perception of things. Its aim is the rational management of resources.

5.2.2 Sustainability

5.2.2.1 Definitions of Sustainability

The definitions that are given by the sampled companies about the concept of sustainability are many. However, common issues were emerged that concern all sampled companies. These are focused on the viability of each company, the economic benefit and environmental issues (energy and pollution issues). In addition, the definitions are in accordance with the literature. **Interviewees said:**

DAFNI: *“to have duration through time either within the company or not directing the company, and try to develop the company to pull together the state of the primary processing sector, i.e. the farmers, supporting the local economy and the country”.*

Dairy Laboratory Agricultural University of Athens: *“a stable source of raw material and a staff that refinance its operation. Therefore, the combination of raw material, staff and functionality of an enterprise indicates the concept of sustainability in order to be a refinanced unit to meet its needs and its functionality”.*

Divanis Thessaly Trikala S.A.: *“sustainability is intertwined with the economic benefit/viability of the company. I.e. the implementation of energy solutions such as the exploitation part of the energy solutions from PV panels’ installation, the replacement of ordinal lamps with LED technology, the recycling and in general through these actions a compensation rate to be given to the company. Also, sustainability is intertwined with farmers’ viability”.*

Pagonis Sisters & Co Dairy Products: *“actions that the company has in order to promote issues of energy and environment, energy management and natural resources”.*

RODI FOOD Ltd.: *“when as a company we have set solid foundations and we evolve being grounded and looking what has gone wrong”.*

TEMPI Greek Dairy Products: *“development, including actions such as recycling, waste treatment and synergies between SMEs in order to lead to a greater shape, closer to EU”.*

X micro company: *“We should use recyclable materials and make recycling in terms of packaging, because ware on a planet that not all are in abundance”.*

5.2.2.2 Sustainability practices/actions

Remarkably, the small and micro companies maintain an environmental behaviour, having recycling and energy use. However, the concept of sustainability has a subjective character and the sustainable strategies differ between companies. As a result of the field survey we collected a number of current and future actions connected with sustainability practices which are (Figure 16):

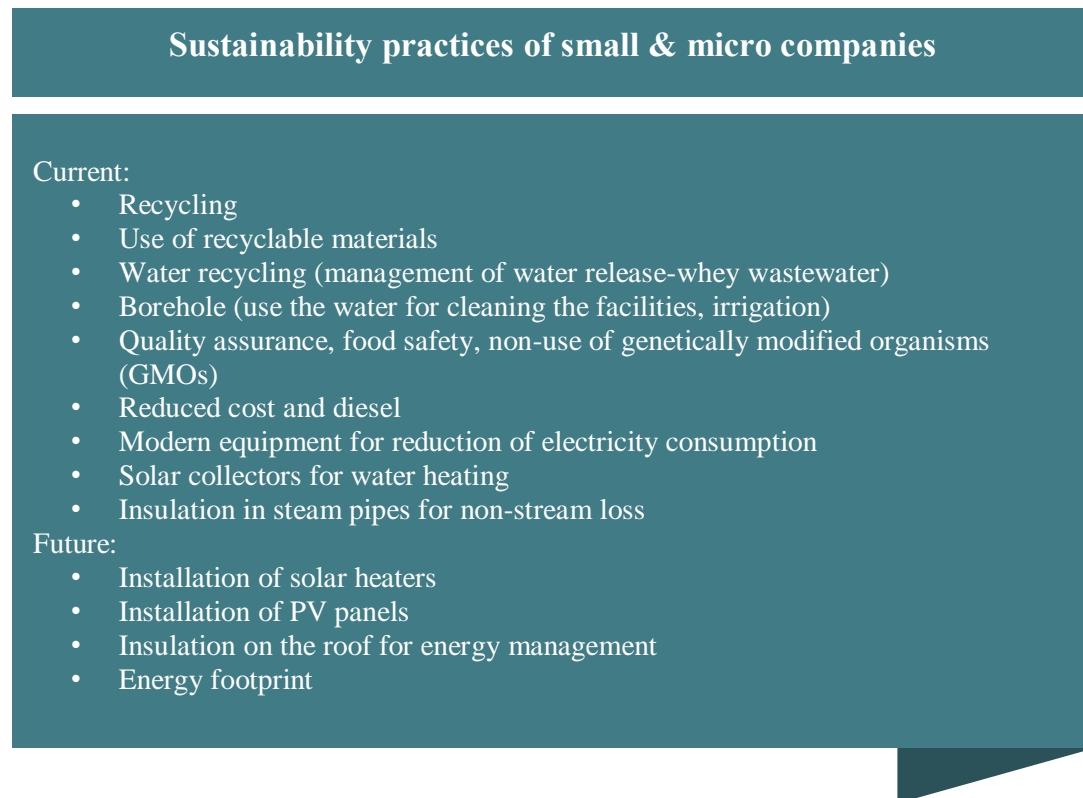


Fig. 16. Sustainability practices of small & micro companies

The recycling of packaging and the use of recyclable materials during the production process is the most common action/practice according to the companies **DAFNI**, **Divanis Thessaly Trikala S.A**, **Pagonis Sisters & Co Dairy Products**, **RODI FOOD Ltd.** and **TEMPI Greek Dairy Products**. Interviewees said:

RODI FOOD Ltd. and **Pagonis Sisters & Co Dairy Products** mentioned that recycling bins have been placed at the companies after their invitation, where trucks of the municipality, with whom they keep contract, collect the recyclable materials.

However, **DAFNI** referred; there are cases where a company cannot find similar response from the municipality to receive recycling bins. Despite the ignorance of the municipality, it deals with recycling and transports its recyclable materials to the nearest

bins in the area. So, it tries constantly and this time 90% of its packing materials are recyclable.

Furthermore, *RODI FOOD Ltd.* and *Pagonis Sisters & Co Dairy Products* reported that they keep a contract with a Greek private recycling company, which supplies the recyclable materials that they use in their dairy unit, such as materials for product packaging. So, according to the volume of production and sales that each company declares to the recycling company, it is charged these materials and, if it is registered, it receives the brand of recycling which is placed on the product packaging as identifier for consumers.

Besides the recycling of packaging/materials, *Pagonis Sisters & Co Dairy Products* implements water recycling (management of water release-whey wastewater) that is a sustainability action where the water is collected by tanker. Besides, this company has a borehole, using the water for cleaning the facilities and for irrigation.

However, *DAFNI* and *X micro company* are not engaged in cheese products, which mean that they do not face the waste whey from the production phase.

Moreover, the energy issue is another issue that concerns *Pagonis Sisters & Co Dairy Products* because the current electricity consumption by refrigerators and heating needs are high. It has immediate plans to install solar heaters and PV panels. Even, the insulation in steam pipes in order not steam to be lost and the insulation, which is predicted, on the roof of the company, support the energy management issue of this company.

DAFNI in recent years has reduced its cost and diesel and it uses solar collectors for water heating. Also the company's manager cited that he constantly uses modern equipment in order to reduce the electricity consumption. However, he supported that large companies have mainly the most modern equipment.

Additionally, *Pagonis Sisters & Co Dairy Products* and *DAFNI* mentioned the energy footprint and they find it very important because it contributes to total reduced cost. Replacing for example regular milk with coconut milk for the manufacture of the rice pudding product is a reflection of energy footprint reduction as *Pagonis Sisters & Co Dairy Products* said.

Therefore, *Pagonis Sisters & Co Dairy Products* is interested in issues of health and food safety, having its own raw milk quality self-lab and it performs daily checks on milk, which is supplied by its farmers. Also, the company's products come from animals that are not fed with genetically modified organism (GMOs).

However, sustainability actions are difficult things in Greece, as the company *DAFNI* mentioned.

Also, *Divanis Thessaly Trikala S.A.* said that as a small company, the needs and difficulties that face, has different nature than the large companies and for this reason the company has satisfied so far with its actions.

Moreover, as *TEMPI Greek Dairy Products* mentioned, it is not contemplating to deal with more sustainable actions in the future such as renewable energy sources, due to its small size.

However, *Dairy Laboratory Agricultural University of Athens* and *X micro company* do not implement some kind of sustainable practices yet.

Dairy Laboratory Agricultural University of Athens actions and operation cost are restricted by the university where is placed.

X micro company cited “because of the uniqueness of the product, there are future thoughts of sustainable actions that would benefit economically, deriving profit”.

5.2.2.3 Legislation/Certification

The small and micro companies follow the modern standards of legislation and certification with quality assurance systems and hygiene as well, since legislation is intertwined with viability of a company. However, as supported in the literature, some small companies terminate their operation due to the requirements of current legislation and EU directives. **Interviewees said:**

Pagonis Sisters & Co Dairy Products mentioned that the legislation contributes to the promotion of sustainability and corporate social responsibility, since on the one hand it helps companies to grow up, but on the other hand it pushes them. However, over the years, changes are observed in the relevant legislation. In addition, it has received the green dot from Greenpeace, because the company's products come from animals that are not fed with genetically modified organism (GMOs).

Divanis Thessaly Trikala S.A. has also mentioned that is certified with quality assurance systems and hygiene.

X micro company obeys the law, having permission from the municipality where it is placed for the retail store that it has and it is controlled for its livestock activity by respective entities.

RODI FOOD Ltd. and *TEMPI Greek Dairy Products* mentioned that they follow modern standards of legislation and certification. Also, *RODI FOOD Ltd.* cited that the farmers, with whom it cooperates, are certified.

Dairy Laboratory Agricultural University of Athens mentioned, the compliance with the law is basic reason for a company's functionality. Hence, the laboratory as an educational unit (secondary production), it has all the necessary permits and specifications for the waste, handling of animals etc.

DAFNI said it is a very important for a company to meet the environmental conditions. An example is the renovation that took place in its production unit where new licenses were adopted as an environmental permit.

Moreover, *Solidarity for All* mentioned that a law is discussed in order the overproduction of food to be prohibited and through structures such as *Solidarity for All* with the cooperation of companies the food will be distributed to those in need. France is the first country in which that food law is implemented.

5.2.2.4 Value of the company

All the sampled companies supported that sustainability gives added value to a company, enhancing its reputation. However, consumers are not able to appreciate it. One reason, they are not acquainted with the importance of sustainability actions. Another reason, sustainability issue is at early stages in Greece. Third reason, economic crisis turns consumers to cheaper products and private labels, choosing the "convenience" of supermarket. Crucially, literature supports that consumers are willing to buy environmentally friendly products. Comprehending, consumers support the smaller production units of local farmers, showing that they want products with high quality value. **Interviewees said:**

DAFNI referred that consumers in Greece are not aware, something that is proven by their daily way that they act in contrast of other companies. An example is the irrational

use of plastic, i.e. plastic products carrier bags that the consumers get from the company during their sales to it. Consumers perceive insignificant such action, without realizing that this action increases the energy footprint.

Dairy Laboratory Agricultural University of Athens mentioned that this is at an early stage in Greece as opposed to other European countries. Nevertheless, this does not influence the laboratory's reputation, because those consumers that choose its products, they do it because of the university's reputation.

Pagonis Sisters & Co Dairy Products supported that a consumer should be most searched in order to appreciate company's sustainable profile. The manager said *“At this moment consumer is caring more of buying as cheap dairy and cheese products as possible. Hence, it chooses industrial products and the “convenience” of the supermarket instead of the traditional products which contain the authentic flavor and the beneficial ingredients in each food”*.

TEMPI Greek Dairy Products mentioned that *“Reliability of a product brings customers”*. However, there is difficulty in order a consumer to start appreciate the examined issues, because the consumer must be trained / informed in order to think with this way.

5.2.5.3 Affordable pricing

The complex tax system, the government's action that constantly creates cost and the high services cost in Greece restrict small and micro companies to be flexible with their products' pricing. The price war, with intense competition is a barrier for small and medium enterprises, as literature mentions. In addition, companies should adapt their products to the fast-changing consumers' dietary habits. **Interviewees said:**

The accounting part with the complex tax system, the government's action that constantly creates cost, the services cost of a business in Greece are in a deep trouble, as *DAFNI* supported. Moreover, the certifications are another cost for a company, because if a company wants to be in a level and it needs to get into the supermarkets is obliged to apply the principles of HACCP. In addition, as the manager mentioned the products cannot be sold in affordable prices, due to the specific nature of sheep's milk. However, the prices are reasonable in comparison with the competition. Nevertheless, the costs that they have to deal at all stages of a product are many.

Dairy Laboratory Agricultural University of Athens mentioned that the prices of its product are affordable, not only because it is a tradition of the laboratory, but also because it is the right, especially in Greece of crisis. Of course this flexibility is caused because the raw material that is used is free, since the milk is supplied by the farmers of livestock production of the university. So the profits from the sales remain as income in the laboratory.

Divanis Thessaly Trikala S.A. and *TEMPI Greek Dairy Products* prices are moving on reasonable levels.

However, although the CSR and sustainable actions give value to a company, consumers' preference for industrial yogurt and not particularly for the traditional yoghurt, creates difficulties for companies with short-range in contrast to larger companies that have pricing flexibility, as *Pagonis Sisters & Co Dairy Products* referred. The company said that the price war is intense / fierce. Also, things are constantly changing with consumers' habits to vary throughout the years. For example, consumers due to changes in their dietary habits were asking lean cheese that in previous years were not interested in consuming it. Moreover, the company's manager supported that this period the company is located on the borderline between the traditional and partially modernized mode of production, being in a constant struggle in order its products to be modern, but with traditional profile.

Moreover, *Pagonis Sisters & Co Dairy Products* mentioned that the criteria that consumers choose their products are numerous. The price oriented is the basic criterion for a consumer, that he chooses cheap products, in which the Greek identity may be absent. However, smaller companies have not the possibility to reduce their products' prices, because they do not have economies of scale and their operating expenses are very high. Nevertheless, these companies try to follow more accessible frames for the consumers.

RODI FOOD Ltd. mentioned, there is a price war in the dairy sector, especially in the feta cheese. In order feta cheese to be produced, 3.5kg milk is needed. Also, PDO offers added value to a product. But unfortunately the state does not protect the name of feta in Greece. Hence, many products are produced under the name of feta, without the specific characteristics of this specific product.

X micro company supported that its prices are moving on reasonable levels, because it has the raw material. However, it cannot be so much flexible as the larger companies.

5.2.3 Corporate Social Responsibility (CSR)

5.2.3.1 Definitions

Cooperation with local community, support of weak groups of people, workforce's respect, employees' compensation, resources' use and interrelationship between companies and society are the most important issues that the small and micro companies cited. Hence, the main aspects of CSR, as literature presents, are emphasized. However, the meaning of CSR differs between corporations and crossing borders. **Interviewees said:**

DAFNI: *“When a company decides to become viable in the future and to be sustainable, it should be in cooperation with the local community and society where is addressed and to have a rewarding relationship, i.e. not only taking, but giving. It is needed green growth for energy cost reduction, energy footprint reduction and actions in the local community through sponsorships and local grocery stores”.*

Dairy Laboratory Agricultural University of Athens: *“CSR is related with how a company treats its workforce, if rewards as they deserve, how it behaves them, if promotes diligence policies and co-diligence and how all these are transferred as profit in the business. CSR also includes donations/sponsorships that are offered by a company”.*

Divanis Thessaly Trikala S.A.: *“CSR is related to quality and social action that a company has”.*

Pagonis Sisters & Co Dairy Products: *“CSR is associated with social transactions/actions that are made by a company in order to improve its social body”.*

RODI FOOD Ltd.: *“Any company which is active within the local community is good to help the local environment in which it operates without deterioration, by having a mutual relationship”.*

TEMPI Greek Dairy Products: *“actions that young people can be helped to find a job, always with specialization on food.*

X micro company: *“You need to contribute for those who have not”.*

Solidarity for All: “Corporate Social Responsibility is referred to actions and conditions of each company, the employees’ compensation and the use of resources in a rational or not way. Also, the management of human resources, i.e. knowledge and skills of staff of each company is part of CSR”.

5.2.3.2 CSR Actions/Practices

Remarkably, the small and micro companies maintain a social behaviour. The support/partnership with local community, training farmers, educational visits for pupils and students, support farmers in a developing country, support of poor group of people are some of the practices. Nevertheless, there is not a certain standard of CSR worldwide, because the changes that exist in a country differ from another country. Moreover, based on the social behaviour that the sampled companies have, they can be classified to the charitable CSR dimension. This means that they have a long distance to touch the new holistic approach of CSR. As a result of the field survey we collected a number of CSR actions connected with CSR practices and namely (Figure 17):



Fig. 17. CSR practices of small and micro companies

The interviewees said:

DAFNI mentioned that has collaboration with the social grocery store in the municipality of Marathonas where it operates and with a children’s camp of Athens, offering its products, mainly ice-cream. However, the manager supported that a SMEs does not have time to be engaged with sustainability and CSR actions, due to its small size.

Therefore, pupils and students visit the *Dairy Laboratory Agricultural University of Athens*, where the staff informs them about the laboratory, transferring its knowledge. Sponsorships/donations and participation in social groups are not CSR actions of this company. However, as a unit inside a university, is focused on the dissemination and exchange of knowledge and starts cooperation with third world countries and more specifically in Kenya. The goal of this cooperation is the support of farmers and dairies units with their knowledge without financial reward, in order to learn how to process milk and create milk processing plant.

Divanis Thessaly Trikala S.A. mentioned its social activities include the distribution of products in poor population groups, distributing their products. Through the cooperation with the municipality of Trikala, the company also distributes its products. In addition, it gives its products to its employees and it focuses on fair labor. A further initiative concerns its participation in international food fairs.

Pagonis Sisters & Co Products contributes locally with the exploitation of primary production in the area, by spreading the use of agro-food sector, with the support of feed and the use of labor in the region. In addition, as the manger mentioned “*a lot of struggle is needed in order a small company to survive. The difficulties are many and many sacrifices are required, without profit. But it is important to love what you do*”.

Moreover, *Pagonis Sisters & Co Products* supports at intervals solidarity structures, distributing its products directly to consumers without intermediaries. This action is called Producers’ and Consumers’ Network “without intermediaries” and it is one of many actions of the organization *Solidarity for All*, an organization that brings together producers, who are tested for their quality in structures without intermediaries. So, the consumers have the opportunity to obtain products at wholesale prices and 2% of the final turnover is given to vulnerable social groups.

The support of local sport unions under the form of grants is a social action of ***RODI FOOD Ltd. Company***. Also, the manager referred that there is the possibility to support a small sport team later in the future, because company’s consolidation and sales growth are his immediate goals this period. In future, the company seeks to be given incentives by the municipality.

On the other hand **TEMPI Greek Dairy Products** mentioned that until now has no CSR actions and it needs a reason in order to start, aiming to support young people for work, always with specialization on food.

Moreover, **X micro company** participates in organized actions, if are asked, offering its products. The company's manager claimed that *“Everyone should support CSR actions, contributing to it, because we are in a society that we live from these people because they support us”*.

As **Solidarity for All** reported *“We live in an environment where the market is dominated by the laws of the market, the financial system-banks and the consumption patterns are configured in such a way that continuously new habits are created”*. Funds' over-accumulation/abuse, relentless competition, inequality and market “games” are dominated as structures. Also, the image that the productive sector depicts is more the profit than the interest to society, environment and humans.

This was the beginning this kind of structures to be supported with the participation of other structures such as social clinics and social workshops, supporting vulnerable groups of people. Through this organization the farmers' production is offered instead throwing away, either because it is not sold or because is not accepted by supermarkets because it has different characteristics e.g. shape, colour, according to the market preferences. Thus, financial results are achieved where food and medicine for everyone are collected and hope is born again, something that has mainly lost during the crisis.

Solidarity for All said: *“What prevails is a perfect irrationalism with many products to be thrown away. If these products were distributed, there would be no cost of environmental, social etc. There is monopoly and a ruthless prices' competition between few, with the supermarkets to give space only to the plenty of products that the few companies produce, without supporting other producers. Many producers and various companies, as Pagonis Sisters & Co Dairy Products, support the organization because they have many unsold products due to their difficulty to have access to markets. So, they cooperate with solidarity in various structures such structures “without intermediaries”*.

5.2.3.3 Actions of Large companies

Although, the small and micro companies appreciate the actions of large companies, they consider that advertising/promotion is the main reason of these actions. However,

company's contribution to CSR actions is based on the role that it has as part of the society and it is not an economic matter. Nevertheless, small and medium enterprises believe that CSR actions can be implemented only by large companies, who have the funds and resources, as the literature mentions. **Interviewees said:**

DAFNI mentioned that there are actions that taken place by large companies which deserve and must be done, without unwillingness.

Dairy Laboratory Agricultural University of Athens and *X micro company* consider that the CSR actions of large companies are implemented for advertising reasons. However, as the laboratory's manager mentioned there are companies that take care for the society as part of it, without caring only for the profit.

Moreover, *Dairy Laboratory Agricultural University of Athens* mentioned that larger companies can deal with these issues in a better way, due to their economic comfort. However, as the manager said, CSR actions are not based on an economic matter, but it is everyone's obligation, as part of a society, to take care about it because it is something that starts at a personal level and continues at a company level. But with respect to sustainable actions, the financial ability of a company contributes to their implementation.

Divanis Thessaly Trikala S.A. mentioned that the main incentive for large companies to implement CSR actions is the theme of advertising/promotion.

Pagonis Sisters & Co Dairy Products said that it cannot express an opinion about the actions of large companies. However, the company's manager could be that large companies have intensive social level actions such as the organization of sports activities.

RODI FOOD Ltd. said “*whatever becomes is positive and I wish to be prevailed as a consistent and stable trend, with the companies to become more active and to apply more actions and activities/practices*”.

TEMPI Greek Dairy Products supported that CSR actions of large companies are being many levels above the actions of a small company. However, if you compare these Greek actions with actions on abroad, Greek actions are lagging behind.

However, *Solidarity for All* mentioned that large corporations use CSR as a pretext-for marketing purposes, to be advertised, increasing their revenues.

5.2.4. The role of actors

5.2.4.1. Cooperation with actors

Except for one company, in general terms, the sampled companies have no cooperation with stakeholders (governments, private organisations, society). However, instead of stakeholders, a company has cooperation with university. **Interviewees said:**

DAFNI stated that it maintains personal relations with those that it works, such as the municipality of Athens that has personal contact with staff and the social grocery municipality, supporting sports activities with sponsorship/donations offering its products. The company's manager said "*The strategies of the state are set up by people who have not involved with the sector*". This is main reason that government agencies cannot support the companies not only in the examined issues but also in an overall situation.

In general terms, *Divanis Thessaly Trikala S.A*, *RODI FOOD Ltd*, *TEMPI Greek Dairy Products* and *X micro company* they do not have cooperation with stakeholders (governments, private organizations, society). However, *Divanis Thessaly Trikala S.A* mentioned that through its social actions it has cooperation with the local society where it operates.

Dairy Laboratory Agricultural University of Athens has no cooperation with stakeholders. However, as a unit inside a university, is focused on the dissemination and exchange of knowledge and starts cooperation with third world countries and more specifically in Kenya. The goal of this cooperation is the support of farmers and dairies units with their knowledge without financial reward, in order to learn how to process milk and create milk processing plant.

Pagonis Sisters & Co Dairy Products mentioned that it maintains contact with the Ministry of Rural Development and Food, the Greek Agricultural Organization-Dimitra and AGROCERT. Moreover, it keeps in touch with the non-governmental organization Greenpeace, which aims to stop the excessive use of soybean and replace it with bean cultivation and lupine as feed in order farmers to cultivate fodder more economical instead of using GMOs such as soybeans. Also, the company has its own suppliers and dealers, in order the consumers to be supplied its products.

5.2.4.2 Incentives

Despite the lack of incentives, small and micro companies behave socially and environmentally, having as incentives, their personal awareness, the law compliance and the profitability and viability of their company. However, the sampled companies and literature support that cooperation between governments, private organizations, society, citizens and consumers is needed. Although, there are a small number of programs, they cannot motivate small and medium enterprises to get a start with sustainability and CSR, as literature presents. **Interviewees said:**

DAFNI acts sustainable without being supported by subsidized programs. However, the compliance of the environmental conditions is very important motivation for the company. Although it does not produce cheese products and consequently it does not face the whey wastewater, the company's manager support that *"You should be right and active as everyone in the region from farmers to companies in order to produce good quality products without additives and be aware to support this effort. The good news is that many young people who have the knowledge are engaged in the region in order viability/survival to be achieved"*. Therefore, the motivation of the company to be engaged with social actions is personal reasons of offer and interest. However, through these actions the social profile of the company can be improved. Also, the manager claimed that the energy cost and the awareness and not the legislation were the company's motivations to deal with the examined issues. Although the company is environmentally aware, it cannot understand the reason why there is not same level of awareness. However, the manager mentioned that he has not received incentives about the examined issues. Regarding to the local community, the manager knows all the actors that has cooperation. However, it is said that *"The thumbs up will be received only from ordinary people"*.

Divanis Thessaly Trikala S.A. stated that sustainability is intertwined with the viability of farmers who give their milk to the company itself. But farmers have not the required capital to support the development of their production. For this reason guarantors are required who will support them. One such case is the programs that are offered by banks in dairy companies, which guarantee for farmers. Also, the manager mentioned that resources' saving is the reason that engaged with the examined issues. The company's manager supported that financial benefits should be given to a company and practical

issues to be served in order a company starts engaging with more sustainable and CSR actions.

Dairy Laboratory Agricultural University of Athens mentioned that “*the university does not give incentives for development. Any initiative that is taken place is because of the personal ambition of the laboratory’s manager for development and profitability of the laboratory*”. An example is the participation of the laboratory in a business plan that included environmental protection activities, financial resources and staff evolution. Also, the manager mentioned that the laboratory’s incentive includes the manager’s and laboratory’s interest, because as the manager said: “*You ought to give added value to society and you have the obligation to offer a part of profit and in this case a part of knowledge*”. The manager said: “*they are not given substance’s incentives but the incentives that are given are need’s incentives*”. In short, the governments do not generally give incentives and the given incentives are for economic reasons, without focusing on the essence of things. Essentially, the manager’s personal intention is primarily the motivation for the development the laboratory. However, incentives are given by companies such as biological cleaning that is mandatory due to the control mechanisms.

Pagonis Sisters & Co Dairy Products supported that when a company implements “green” practices, it earns financially, which is one of the reasons/motivation that deals with sustainability. Also, despite its small size, the company tries as much as possible, having thoughts for future actions, as the manager mentioned.

RODI FOOD Ltd. supported that initiatives and incentives are needed in order both sustainability and CSR to be spread. However, his environmental awareness, primarily as a consumer and after as a company, is the incentive to engage with sustainability. As the manager cited “*this is the right thing, differently, a company would be off season*”. Also, the company has thoughts for future sustainable practices such as PV panels’ installation, if the subsidies around the installation and the essential actions that a company have, would be clear. However, the manager seeks to be given incentives by the municipality in the future. Also, he mentioned that through awareness and motivation CSR and sustainability can be supported, because many businessmen are unaware about the examined issues.

Tempi Greek Dairy Products supported that despite the lack of incentives, the company started to deal with sustainable actions, when the sustainability concept matured as a decision inside the company. The compliance to the law was the motivation that the company started the engagement with the examined issues. However as it is mentioned by the company, SMEs can adapt CSR and sustainability in their practices only through synergy. Any motivation from government or organization has not become noticed.

X micro company claimed that a motivation would be the reason in order to start sustainable actions. This motivation includes governmental tax cuts and support of SME dairy companies, something that happens in other enterprises. As this company mentioned “*government interventions are required to move things towards sustainability because it is difficult to be achieved by private initiative*”. Also, the manager referred that it offers its products to people with need. The incentive arises from the nature of the products which due to the short expired date are offered than be thrown away. However, the manager considers that the state should support not only the examined issues of this study, but also the SMEs since they attribute and contribute to the state.

Solidarity for All mentioned that such actions are not supported by the respective governments, who are against them, something that happened in the past.

5.2.4.3 Social Cohesion

Small and micro companies are connected with the local community, encouraging sustainability and CSR issues, as literature presents. However, social cohesion is needed to simplify the sustainability and CSR issues. But, the corruption of society creates a lot of obstacles. **Interviewees said:**

DAFNI mentioned that it is difficult to be achieved cohesion between government, private organisations, society, citizens and consumers about the examined issues, because they do not have all the same level.

Pagonis Sisters & Co Dairy Products mentioned that social cohesion between government, society, retailers and consumers about the issues of sustainability and CSR is difficult to be implemented, because the society is corrupt. Only through governmental decision this cohesion could be achieved.

RODI FOOD Ltd. believes that social cohesion between stakeholders could help the organization of the examined issues.

TEMPI Greek Dairy Products believes that social cohesion between all stakeholders would give more dynamic and help these specific issues to be organized.

X micro company referred that it has relations with the local community where it operates.

Solidarity for all cooperates with the supporting social solidarity fund of the government, which supports such structures in the country and when this organization needs some financial assistance, is supported by it.

5.2.4.4 Exchange Knowledge

Small and micro companies share, in a consistent basis, knowledge, expertise, common practices and experience with other small and micro dairy units, university or external partners. Apart from partnerships with universities and institutions, partnerships with competitors are created. However, the lack of cooperation between relevant bodies creates difficulties without companies receiving the knowledge, as literature presents.

Interviewees said:

DAFNI has cooperation with two cheese units, exchanging knowledge, technology, practices, experiences and discussing common problems and difficulties. The one is the cheese unit in the area of Marathona with which have common livestock farmers and another one is the cheese unit of Megara, giving the food technology knowledge and receiving the economic knowledge from the manger there.

Dairy Laboratory Agricultural University of Athens mentioned that it exchanges knowledge, expertise and technology, experiences, practices on a consistent basis between the laboratory and dairy/cheese units. This cooperation includes the cheese production and how to face production problems as well health and safety advices.

However, there is also the other side, as *Divanis Thessaly Trikala S.A.* said that although this company had cooperation with a company, exchanging experiences/practices, providing assistance to each other on common issues/problems that they faced, this cooperation ended. Nevertheless, cheese sector has difficulties in order companies to retain such communication.

Pagonis Sisters & Co Dairy Products mentioned that it exchanges its knowledge, technology, experiences, practices, only where it can be. An example is the consulting that the suppliers provide to the company about the raw materials. Also, the exchange

of knowledge includes the training in agro-farmers who want to improve their raw material, students and cheesemakers and those that are interested in starting to make their own yogurt.

Another form of knowledge/experiences/practices exchange is the cooperation that ***RODI FOOD Ltd.*** has with the Agricultural University of Athens in order to develop a soft sheep cheese. It has also cooperation with other companies in order to improve production codes (crop supply, molds, rennet, etc.).

TEMPI Greek Dairy Products claims that 80% of the knowledge, practices, and experiences during processing are same/ common. A 20% differs between companies which could be exchanged. But, which company will share knowledge and practices without maintaining something exclusively for itself?

5.2.5. Communication

5.2.5.1 Current position of the company

Small and micro companies perceive their need for improvement in comparison with corresponding companies in the dairy sector. Although, opportunities exist, the difficulties and challenges in order companies to engage with sustainability and CSR are many. **Interviewees said:**

DAFNI claimed that “*there is always space for improvement in all areas*”. Although the manager argued that they are on the right path, he is not satisfied, because he always expects something more such as to increase his client list.

Dairy Laboratory Agricultural University of Athens mentioned that currently, the laboratory produces a ton of milk per year and it sells its products in a small portion of consumers, i.e. those who know and visit the laboratory. There is no competition. But if a new business unit is created, then surely the competition between companies of the same type, i.e. units that are placed inside a university, will be perceivable.

Divanis Thessaly Trikala S.A. considers that they need improvement in comparison with corresponding companies in the dairy sector

Pagonis Sisters & Co Dairy Products estimates that it has still long way in the dairy sector. But it mentioned that opportunities exist, because the sector has still space for everyone, especially for the yogurt and cheese products.

RODI FOOD Ltd. company mentioned that it is at early stages (infancy age), without having specific communication and marketing strategies.

TEMPI Greek Dairy Products is satisfied with its progress, based on its operation years.

X micro company said that it has a dignity position in the dairy sector in comparison with the dairy companies that operating in the sector.

5.2.5.2 Strategic communication and marketing

Small and micro companies use printed and electronic promotional actions, newspapers circulated throughout and local, Facebook page, website, radio, advertisements, conferences, taste tests at collaborating stores and word of mouth. Based on the literature, internet and social media are the most popular means of communication that companies use. However, some environmental actions cannot be transferred to the general public due to the nature of the information.

As a result of the field survey we collected a number of current and future means of communication (Figure 18) namely:

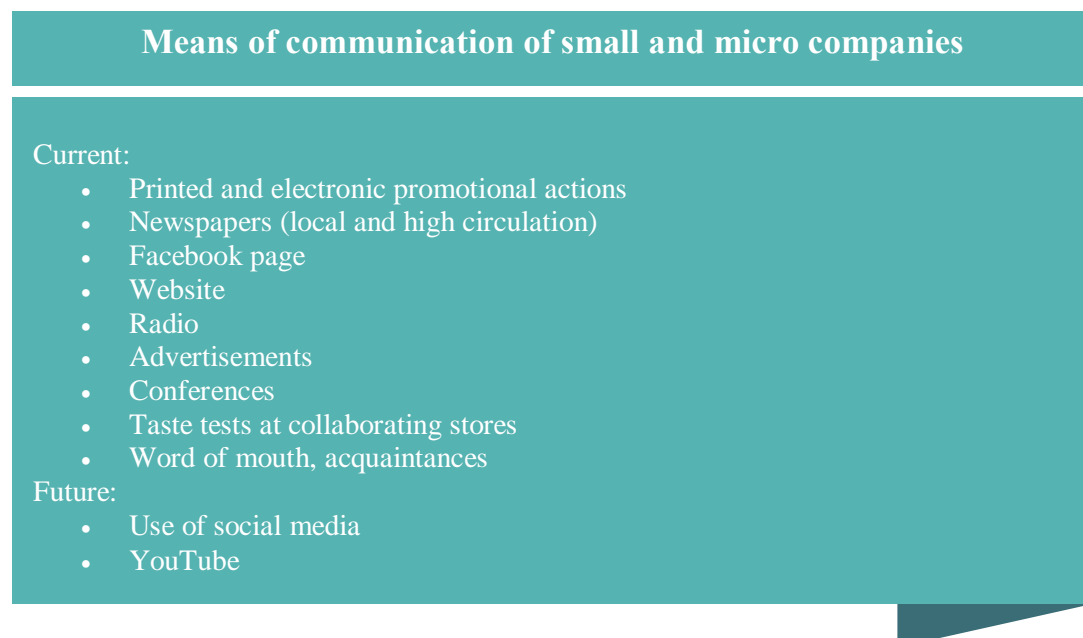


Fig. 18. Means of communication of small and micro companies

The interviewees said:

DAFNI mentioned that there is a general assumption that companies do everything for marketing. The company has a Facebook page, because it is a functional mean of social networking, with more meaningful and targeting in business in order customers to keep informed. YouTube is a thought for the company's advertising. In addition, the company's promotion is taken place through its website, printed and electronic actions for products promotion, taste tests at collaborating stores, etc.

Apart from their website that *Divanis Thessaly Trikala S.A.* and *Pagonis Sisters & Co Dairy Products* have, they keep informed their consumers through their Facebook page as a practical method.

Moreover, on the other side, the *Dairy Laboratory Agricultural University of Athens* does not use strategies of communication and marketing. Word of mouth spreads the effort of laboratory's staff and the customers, who visit it, perceive the high levels of expertise that is used in the production of products, being satisfied with the combination of product quality and price. Hence, a relationship of trust is created with the laboratory to have a steady client list.

However, *Pagonis Sisters & Co Dairy Products* wonders if the marketing finally covers or creates needs. Except of the promotional tools, the strategic location that a company has, the years of experience, the employees and the small capacity play important role to company's promotion, as *Pagonis Sisters & Co Dairy Products* referred. Specifically, the company said that it has a strategic position because it is only 60 Km from Athens. The 50 years of experience, the skilled staff that is employed and the small capacity that gives flexibility are some of the strengths that this company has.

RODI FOOD Ltd. Company uses printed material which shares and newspapers circulated throughout. However, the manager's immediate plans include the use of social media, because it is the most economical and efficient way of advertising.

TEMPI Greek Dairy use radio and the social media as means of advertising its products.

Therefore, *X micro company* mentioned that it is promoted through conferences, local newspapers, advertisements and acquaintances, without the use of social media.

Moreover, communication between companies and employees is needed in order employees to be informed well, about sustainability and CSR practices. **Interviewees said:**

DAFNI mentioned that its employees are informed about its CSR actions and they participate, because the company's principle is to give joy.

Divanis Thessaly Trikala S.A. mentioned that its actions remain known to the administrative part of the company without being communicated to other staff.

Pagonis Sisters & Co Dairy Products mentioned that its employees are informed mainly for recycling and water management, without being granted permanent education around the issues of sustainability.

6. Conclusions

Companies face many challenges, dangers and business risks associated with the internal and external environment of their operations. Sustainability and corporate social responsibility (CSR) practices/actions support companies to address these issues, by being active and collaborative with others, behaving environmentally with transparency in their practices and improving their company's profitability and viability.

Sustainability is one of the most important aspects. Economy, environment and society should be in a balance in order the world to be sustainable. The viability of each company, the economic benefit and the environmental issues are the main parts that the small and micro companies have defined.

However, sustainability has a subjective character and the sustainable strategies differ among companies. CSR and sustainability practices of large Greek dairy companies are mainly focused on their commitments to society. Predominately, the branches of multinational companies in Greece are in accordance with the directives of the head office of the company worldwide but peculiarly their actions are limited in comparison with their respective branches abroad.

Remarkably, the small and micro companies maintain an environmental behaviour, having recycling and energy use as similar actions with the large and multinational enterprises. However, the size limitation, the different needs and company's nature and the complex structure of sustainability restrict small and micro companies to evolve their actions.

Corporate social responsibility (CSR) is the second major aspect of this thesis. Cooperation with local community, support of weak groups of people, workforce's respect, employees' compensation, resources' use and interrelationship between companies and society are the most important issues that the small and micro companies cited. However, the meaning of CSR is dependent by the different corporations and crossing borders.

Surprisingly, the small and micro companies maintain a social behaviour, organising a lot of practices with touching respectively large and multinational enterprises' actions. The support/partnership with local community, training farmers, educational visits for

pupils and students, support farmers in a developing country, support of poor group of people are some of the similar practices. Nevertheless, there is not a certain standard of CSR worldwide, because the changes that exist in a country differ from another country. Although, a significant number of enterprises can have some kind of CSR activity, however the concept of CSR is vague for them.

Based on the list of sustainability and CSR practices/actions that large and multinational enterprises implement, it is found that their type of CSR is featured by experience, time and resources. On the other hand, the sustainability and CSR practices/actions of small and micro companies illustrate a more oriented type of CSR to family interaction. Crucially, large and multinational enterprises can deal with these issues in a better way, due to their economic comfort. The company's financial ability plays an important role only in the case of sustainability, while CSR actions is obligation for every company, as part of a society. Moreover, although large and multinational enterprises' actions are remarkable, the small and micro companies consider that the main reason of that is the advertising and promotion of their actions.

Comprehending, the new holistic approach of CSR is the way that companies should follow in order to implement their CSR practices. Specifically, their environmental and social behaviour classifies them to the charitable CSR dimension. The large Greek companies belong to a promotional dimension, since through their green profile they empower their reputation. However, multinational companies belong to a strategic CSR, since their strategy is aligned with society and environment.

It should be mentioned that large Greek companies follow modern quality assurance standards in their production process. Corresponding, the small and micro companies follow the modern standards of legislation and certification with quality assurance systems and hygiene, as well, since legislation is intertwined with viability of a company.

Although company's engagement with sustainability gives added value to the company by enhancing its reputation, consumers are not able to appreciate it. Based on the survey's results, sustainability issues and CSR are at early stages in Greece than in other European countries and consumers are not acquainted with the importance of sustainability actions, which empower a healthier and more sustainable dairy sector. Crucially, economic crisis make consumers turn to cheaper products and private labels,

choosing the “convenience” of supermarket. However, a small number of consumers choose products that support the smaller production units of local farmers, showing that they want products with high quality value.

The price war that affects the dairy sector is a reality. The complex tax system, the government's action that constantly creates cost and the high services cost in Greece restrict small and micro companies to be flexible with their products' pricing. In addition, companies should adapt their products to the fast-changing consumers' dietary habits.

According to the results, some of the small and micro companies have mobility on abroad, mainly with PDO products, while others stay locally and regionally. In addition, large and multinational companies produce a huge variety of dairy products for a wider range of consumers. However, small and micro companies produce fewer product categories but with taste and tradition to the consumers.

It is also worth mentioning that the value of sustainability is not yet appreciated by the companies. The economic crisis is the major reason that leads companies to set sustainability out of their priorities. Although, more funds are needed in order companies to change their strategies into sustainability, the increase of viability and the cost saving create a sense companies to feel vindicated.

Moreover, the dairy Greek production is affected by the difficult financial situation, following a downward trend. Also, many cattle farmers have let their livestock due to the difficulties in the sector. Crucially, producers and processors are not well-organized and coordinated in order to share their actions and resources.

The few existing programs, mainly focusing on economic reasons without the essence of things, cannot motivate SMEs get started with sustainability and CSR. Remarkably, small and micro companies behave socially and environmentally, having as incentives, their personal awareness, the law compliance and the profitability and viability of their company. However, synergies among governments, private organizations, society, citizens, and consumers is required.

The society is “*corrupt*”. This means that social cohesion between companies and companies, companies and employees, companies and society (governments, NGOs, citizens) cannot be achieved without governmental decision, as small and micro

companies mentioned. Nevertheless, small and micro companies are more connected with the local community and local stakeholders.

It is worth mentioning that most of the small and micro companies share, in a consistent basis, knowledge, expertise, common practices and experience with other small and micro dairy units, university or external partners. Predominately, large and multinational enterprises do not build partnerships only for company's reputation or brand equity purposes, but also for stability and prosperity reasons.

Small and micro companies recognize that they need improvement in comparison with corresponding companies in the dairy sector. Opportunities exist, but also many difficulties and challenges that a small and micro company face in order to engage with sustainability and CSR. Supportively, many young people are involved in the dairy sectors that have the knowledge to achieve the viability/survival of the sector.

Communication is another major aspect that plays an important role to companies' reputation. Internet is the most popular mean of communication used by companies, promoting responsibility of their societal actions. In addition, social media is used extensively by large and multinational enterprises. However, communication is not only a way between companies but also a mean between traders and suppliers exchanging transparent practices. Nevertheless, some environmental actions cannot be transferred to the general public due to the nature of the information.

Comparing the communication ways of large and multinational enterprises with small and micro companies, the first use website, phone line customer service, labels of products, broadcast on television, radio programs, and participation in conferences. The small and micro companies use printed and electronic promotional actions, newspapers circulated throughout and local, Facebook page, website, radio, advertisements, conferences, taste tests at collaborating stores and word of mouth.

Another major aspect is the communication between companies and employees. Employees are not informed well. Consequently, part of the sustainable and CSR practices are not communicated well to the employees and as a matter of fact they do not have the chance to participate in. Communication of sustainability and CSR practices along the company and active involvement and participation of the employees in sustainable activities and corporate social responsibility action is not prevalent in the small and micro companies.

Overall, the lack of incentives and social cohesion does not prevent small and micro companies from maintaining an environmental and social behaviour. Comprehending the importance of being “green” and socially active, small companies manage and evolve their company's viability through communication, collaboration, and exchange of information with same size companies of the dairy sector.

7. Recommendations

It is found that the collective effort and cooperation among all actors (i.e. governments, companies, non-governmental organizations, society, and consumers) is required. Crucially, government interventions and incentives through programs, subsidies, and tax reduction play a key role in making companies shift towards sustainability. It is worth mentioning that sharing of knowledge, expertise, common practices and experience from larger to smaller companies could potentially have a positive impact on a more sustainable dairy sector. Apparently, a less strict company's policy and cooperation of various departments would facilitate a research in a sample of large and multinational enterprises. Communication of sustainability and CSR practices along the company and active involvement and participation of the employees in sustainable activities and corporate social responsibility actions will serve as a source for further development. Last, but not least, making consumers acquainted with the importance of sustainability will empower actions in a healthier and more sustainable dairy sector while company's reputation will get enhanced.

8. Appendix

8.1. Interview Questions

Characteristics of the company:

- Could you explain a little bit about your background?
- How long have you managed this company?
- How many people do you employ?
- What kind of products do you produce?

Sustainability:

- How do you define the concept of sustainability?
- How do you understand it?
- When did you start/integrate sustainability into your strategic plan?
- What was the incentive to be active in sustainability?
- What kind of sustainable actions/practices do you apply in order to succeed the objective of sustainability?
- If not, what are some actions in your opinion that you can start implementing in order to have a sustainable start?
- Do you think that sustainability create value to the company, e.g. improve company's reputation and appreciation from consumers?
- How do you deal with price issues of sustainable products? How can you try to make them affordable?
- What is the reason that you dealt with these issues: the opportunities for profitability and obedience to the law?

Corporate Social Responsibility (CSR):

- How do you define the concept of CSR?
- How do you understand it?
- When did you start/integrate CSR into your strategic plan?
- What was the incentive to be active in CSR?
- What are the CSR activities that you implement?

- Do you think that a SMEs company can adapt CSR and sustainable practices and how can you support them (experience, resources: capacity, funding, time)?
- What your opinion about CSR actions that Large companies implement?

The role of actors:

- Do you have cooperation with stakeholders (governments, private organizations, society, citizens, and consumers)?
- Are you supported by government/private organizations?
- Have you given incentives by government or privately to deal with these issues or do you work separately based on your personal experience?
- Do you have connection with the local community and local stakeholders such as customers, suppliers, distributors and employees there?
- Do you think that social cohesion with the participation of government, society, retailers and consumers can support these issues?
- Do you exchange knowledge, technology, experiences, and practices with other companies –same typology with you or another typology-?

The role of communication:

- How would you assess the current position of your company compared to other companies in the dairy industry?
- Has your position improved after the implementation of sustainability and CSR strategies?
- What are the main communication and marketing strategies that you follow in order to inform consumers, citizens, and private investors about their sustainability and CSR initiatives? Social media, advertisement?
- Are your employees informed on the issues of sustainability? Do they participate in sustainable actions?

8.2. Financial Figures of Greek Dairy Industries, 2013

This chapter includes 129 large greek companies active in the dairy sector (*inr.gr*, *Reduced production of milk products in 2014, 2015*)

Name	Total Assets		Sales	EBITDA	Net Profit
	(thousand euros)	±%	(thousand euros)	(thousand euros)	(thousand euros)
1. DELTA FOOD PRODUCTS S.A.	368,301	-11	279,385	-2,405	-48,995
2. FAGE MILK PROCESSING INDUSTRY SA.	202,064	-9	171,308	-2,798	-12,612
3. TYRAS S.A. MILK INDUSTRY	157,181	-4	131,540	8,560	-1,673
4. MEVGAL - MACEDONIAN MILK INDUSTRY S.A.	137,857	-24	143,334	-3,342	-14,890
5. OLYMPUS MILK INDUSTRY LARISAS S.A.	134,560	-8	148,656	17,113	7,200
6. DODONI – RURAL DAIRY INDUSTRY IPIROS S.A.	97,118	10	83,066	6,881	167
7. KOlios GREEK MILK INDUSTRY S.A.	94,243	-5	78,278	5,793	1,806
8. EVGA S.A. GREEK MILK INDUSTRY & FLOUR	76,943	-4	28,418	2,848	-1,667
9. KRI - KRI MILK INDUSTRY S.A.	60,801	28	68,129	7,575	5,125
10. LITTLE ACRE MILK FARM S.A.	41,080	42	45,770	2,451	1,190
11. EVROFAPMA MILK INDUSTRY S.A.	40,570	-5	22,843	2,454	-475
12. IPIROS S.A. MILK PRODUCTS	38,714	4	31,554	4,960	1,384
13. BIZIOS S.A. MILK RPOCESSING INDUSTRY	27,640	4	21,931	1,586	5
14. ICE-CREAMS DODONI S.A.	27,466	-8	10,915	-250	-2,810
15. RODOPI – MILK INDUSTRY XANTHIS S.A.	26,858	-9	42,724	3,243	1,472
16. BELLAS F. & SON S.A.MILK PRODUCTS	26,094	4	19,374	1,113	-986
17. NEOGAL MILK INDUSTRY DRAMAS S.A.	24,906	6	16,826	2,285	1,375
18. TORRE H. GLATZOYNIS S.A. ICE-CREAMS – FOOD PRODUCTS	22,098	11	20,555	3,692	2,345
19. KOUKAKI FARM S.A. DAIRY PRODUCTS	20,948	6	18,422	2,654	237
20. KARALIS MILK INDUSTRY IPIROS S.A.	20,534	8	22,510	1,881	856
21. DELPHI S.A. DAIRY PRODUCTS	19,324	7	15,045	611	54
22. TRIKKI MILK INDUSTRY TRIKALA S.A.	19,073	15	18,620	2,095	292
23. ROUSSAS DAIRY PRODUCTS S.A. CHEESE PRODUCTS	18,071	2	23,037	1,446	336
24. VIGLA OLYMPUS S.A. DAIRY PRODUCTS	17,027	-22	16,566	-471	-1,690
25. VIOTROS S.A. FOOD – MILK PROCESSING	15,904	11	17,456	1,970	1,085
26. CHOTOS S.A. CHEESE PRODUCTS	14,353	-15	15,765	2,655	1,838
27. KOURELLAS DAIRY PRODUCTS S.A.	14,312	-10	9,119	964	-287
28. KALOGERAKI BROS S.A. MILK PROCESSING	13,078	-18	12,262	663	23
29. LAGAS S.A. MILK PRODUCTS	12,529	-6	11,623	1,062	100
30. A.VI.GAL. ACHEAN MILK INDUSTRY S.A.	12,472	-8	9,685	1,627	538

31.	MATI BROS S.A.CHEESE PRODUCTS - CHALVADES	11,184	4	5,279	788	435
32.	MACEDONIAN PROTEINS S.A. WHEY PRODUCTS	10,776	-18	3,094	374	-2,113
33.	BOUTSOLIS CHEESE PRODUCTS AMFILOCHIAS S.A.	10,483	6	11,671	1,146	487
34.	CAMPUS AGRICULTURAL - FARMING S.A.	10,406	-4	3,887	545	77
35.	EXARCHOS S.A. CHEESE PRODUCTS	10,298	15	10,450	1,065	533
36.	PROIKAS S. S.A. CHEESE PRODUCTS	10,066	-12	7,126	632	339
37.	NIKZAS MILK INDUSTRY S.A.	9,946	-3	10,709	1,226	576
38.	THESSALIKO S.A. CHEESE PRODUCTS	9,031	0	6,156	653	275
39.	SANTZILIOTIS D. S.A. CHEESE BUSINESSES	8,842	35	5,160	760	149
40.	KRIARAS S.A. DAIRY PRODUCTS	8,598	-2	87	-89	-337
41.	EVZONE STANDARD CHEESE PRODUCTS S.A.	8,285	0	40	119	171
42.	KALOMOIRIS B. ILIAKI MILK INDUSTRY S.A.	8,009	15	4,160	294	96
43.	MILK INDUSTRY KATERINIS - KORFI S.A.	7,933	1	6,955	968	690
44.	SERGAL MILK INDUSTRY SERRES S.A.	7,770	17	9,689	1,197	443
45.	DASIOS S.A. ICE-CREAMS – PASTRY PRODUCTS	7,707	0	4,110	639	-195
46.	MANUFACTURING THRAKI S.A. MILK PRODUCTS - SALADS	6,805	8	7,700	507	76
47.	THYMELLIS E. S.A. CHEESE PRODUCTS	6,674	12	4,699	714	455
48.	ACHAIKI ENTELVAIS S.A. ICE-CREAMS - PASTRY	6,425	28	5,195	889	184
49.	VAROS - KIFISIA S.A. PASTRY PRODUCTS	6,311	9	2,531	171	-266
50.	OMIROΣ MILK INDUSTRY S.A.	6,310	16	7,366	682	262
51.	DAIRY PAPADOPOULOS TRIPOLI S.A.	6,235	100	6,558	1,318	695
52.	DAIRY MANDPEKAS S.A.	5,857	14	3,975	315	129
53.	BAFA S. SON DAIRY PRODUCTS S.A.	5,802	-9	3,828	229	4
54.	PAPAKONSTANTINOY N. BROS S.A. DAIRY PRODUCTS	5,779	-16	3,024	361	-5
55.	KALAVRYTA CHELMOS - ACHAIKI CHEESE S.A.	5,701	-10	7,633	875	258
56.	NEED MILK - DRINK COOPERATIVE DAIRY PRODUCTION	5,609	229	23,045	750	758
57.	PEPONOPOULOS – ICE-CREAMS PELION S.A.	5,586	5	3,513	1,057	470
58.	DAIRY LESVOS S.A.	5,541	16	5,560	492	220
59.	TZAFETTAS CHEESE- FARMING S.A.	5,025	9	5,774	451	82
60.	BONITO S.A. ICE-CREAMS – DAIRY PRODUCTS	4,622	17	3,717	990	537
61.	KREMEL S.A. FOOD PRODUCTS	4,573	-8	3,899	395	84
62.	KAYAK S.A. ICE-CREAMS – PASTRY PRODUCTS	4,566	-10	3,113	432	-22
63.	OIKOFARMA PELOPONNISOY S.A. CHEESE PRODUCTS	4,509	-8	3,030	-86	-960
64.	STYMFALIA S.A. MILK PRODUCTS	4,344	8	3,502	519	61
65.	XYLOURIS A. & I. S.A. DAIRY PRODUCTS	4,218	17	3,610	394	-8
66.	CHRYSAFIS M. M. S.A. FOOD PRODUCTS	4,013	8	4,446	278	112
67.	STANDARD DAIRY INDUSTRY PIERIAS S.A.	3,779	-10	5,653	370	99
68.	MILK INDUSTRY ARKADIAS S.A.	3,777	-32	3,308	7	-276
69.	STAMOY S.A. DAIRY PRODUCTS	3,739	26	6,854	519	239
70.	DOMOKOS S.A. DAIRY PRODUCTS	3,728	10	3,625	699	266

71.	D.S. MILKA A. S.A. PASTRY PRODUCTS	3,581	14	3,192	471	241
72.	PETROPOULOI G. BROS – CHEESE PRODUCTS MESSINIS S.A.	3,569	-4	2,872	286	55
73.	PANTAZATOU N. BROS DAIRY PRODUCTS S.A.	3,329	-2	1,650	148	48
74.	WEST - STACHTIARIS DAIRY BUSINESSES S.A..	3,249	36	1,836	247	95
75.	ARVANITIS S.A. CHEESE STANDARD UNIT	3,179	0	6,570	331	216
76.	IPIROU PROTEINS S.A. WHEY PRODUCTS	3,123	28	3,548	691	403
77.	DIMITRIOU – DAIRY PRODUCTS S.A.	2,892	0	3,734	588	364
78.	TSOUTSOPLIDIS - METSOVO VLACHOS CHEESE PRODUCTS S.A.	2,886	-7	2,642	167	64
79.	PAPATHANASIOU S.A. DAIRY PRODUCTS	2,862	-3	4,470	253	22
80.	PROVERTIA S.A. MILK INDUSTRY	2,820	87	6,874	16	13
81.	MESOLOGGI DAIRY PRODUCTS S.A.	2,811	-7	1,593	78	5
82.	PAPANARETOΣ ATEN ICE-CREAMS - SWEETS S.A.	2,742	5	2,421	631	131
83.	AIOLIKOS S.A. CHEESE PRODUCTS	2,580	-9	2,202	65	-120
84.	EGNIL Ltd. DAIRY PRODUCTS	2,517	4	2,937	434	226
85.	KAROYSOS ST. S.A. CHEESE PRODUCTS	2,405	-12	3,535	411	174
86.	COOPERATIVE NUTRITION S.A. CHEESE PRODUCTS	2,320	-10	999	10	-234
87.	LAKONIKI MILK L.A.BIO.GAL. - KYRIAZAKOS S.A.	2,319	-2	3,286	296	128
88.	DAIRY CRETE S.A.	2,111	1	2,237	361	190
89.	CHEESE PRODUCTS KARDITSAS S.A.	2,082	-2	380	81	23
90.	MACEDONIAN FARM S.A. MILK PRODUCTS	1,954	16	1,552	60	41
91.	NEW RODOGAL S.A. DAIRY PRODUCTS	1,806	20	1,579	126	49
92.	DOIRANI S.A. CHEESE PRODUCTS	1,771	-4	677	-152	-392
93.	PETROPOULOS P. CHEESE – DAIRY PRODUCST S.A.	1,763	-2	505	0	-46
94.	DEDEBILIS S.A. FOOD PRODUCTS	1,702	-3	1,117	75	2
95.	MASAOUTI FAMILY Ltd. DAIRY PRODUCTS	1,689	-3	2,382	-89	-147
96.	VASILIOU CHEESE PRODUCTS S.A.	1,678	3	1,988	157	48
97.	PAPADOPOULOS B. A. CHEESE PRODUCTS PARAMYTHIAS Ltd.	1,599	-5	1,214	135	17
98.	FARM AMALTHIA- GOAT FOOD UNIT S.A.	1,597	-3	130	16	-35
99.	ALFA ICE-CREAMS S.A.	1,502	-2	1,146	122	-75
100.	100. THIREA Ltd. MILK PRODUCTS	1,450	1	830	8	-163
101.	PROTEINS CENTRAL GREECE S.A.	1,432	-11	1,751	34	0
102.	GIALOUSIS I. Ltd. ICE-CREAMS – FOOD PRODUCTS	1,294	14	1,367	210	115
103.	VIOFARMA S.A. FOOD PRODUCTS	1,285	4	1,340	122	57
104.	KALLION S.A. MILK PRODUCTS	1,260	2	1,054	52	-10
105.	PLYMAKI BROS S.A. CHEESE PRODUCTS	1,224	2	1,087	69	-14
106.	AGOROGIANNIS N. S.A. CHEESE PRODUCTS	1,156	1	723	109	44
107.	DAIRY LIMNOS G. & S. MARKAKIS S.A.	1,146	-3	665	-18	-53
108.	AMARIOU CHEESE PRODUCTS S.A.	1,135	-1	664	0	-40
109.	EBROGAL S.A. MILK PRODUCTS	1,129	-22	59	-55	-175
110.	DELIGEORGAKIS B. & E. ICE-CREAMS - SWEETS S.A.	1,062	-14	614	10	-28

111. NEOGAL KOS S.A. DAIRY PRODUCTS	1,018	-15	664	57	-10
112. GABLER S.A. FOOD PRODUCTS	1,011	-2	929	275	11
113. BAFAS G. & CO. DAIRY INDUSTRY KRYSTALLIS S.A.	879	-10	911	19	0
114. ECO FARM S.A. MILK PRODUCTS	809	6	275	27	-47
115. ILIAKIS S.A. MILK PRODUCTS	806	20	841	45	8
116. TSIAKAS F. S.A. DAIRY BUSINESSES	779	-24	1,082	78	6
117. DELIGIANNIS CHEESE PRODUCTS PERFETA S.A.	741	-15	195	2	-20
118. DORONET DELICATESSEN S.A. FOOD PRODUCTS	703	-5	741	-18	-83
119. ENTELVAIS S.A. ICE-CREAMS – PASTRYCOOKS	648	-11	38	-18	-70
120. DAIRY CHALKIDONAS S.A.	635	0	142	-18	-47
121. ESKIMO S.A. ICE-CREAMS – PASTRYCOOKS	609	-11	525	41	-7
122. RENI FOODS Ltd. PACKAGING CHEESE	584	-8	2,303	56	29
123. HALKIDIKI S.A. MILK INDUSTRY	583	-5	811	-8	-9
124. TAGARIS H. DAIRY PRODUCTS S.A.	492	-2	732	20	7
125. DINO - KONTOGIANNIS S.A. ICE-CREAM INDUSTRY	476	2	123	36	10
126. PEMBE CH. - AGNOGAL Ltd. MILK PRODUCTS	423	-8	1,063	60	23
127. ACHEAN PROTEINS S.A. WHEY PROCESSING	420	-3	140	39	-1
128. FARM LIAPI S.A. DAIRY PRODUCTS	398	-13	0	-9	-13
129. ILK Ltd., ICE-CREAMS PRODUCTION	114	0	140	0	-13

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