Instituto Superior de Economia e Gestão
UNIVERSIDADE TÉCNICA DE LISBOA

Master in Marketing

Case Study

Product-specific Sustainable Marketing Audit: Delta Q

Fernando Manuel dos Santos Torrão Caria

Tutor: Carmo Leal (MSc), ISCTE

Jury Constitution:

President: Helena do Carmo Milagre Martins Gonçalves (Phd), ISEG

Vowels: Maria Fernanda Pargana Ilhéu (Phd), ISEG

Maria do Carmo Barradas Leal (MSc), ISCTE

March, 2012

General Index

1 ABSTRACT 7

1.1 ABSTRACT 7

1.2 PORTUGUESE ABSTRACT (SUMÁRIO) 9

2 ACKNOWLEDGMENTS 11

3 INTRODUCTION 12

4 RESEARCH OBJECTIVES 18

4.1 SUSTAINABLE MARKETING CASE STUDY OBJECTIVES 19

4.1.1 Product-specific sustainable marketing audit 19

4.1.2 Sustainable marketing diagnostic 20

4.1.3 Identification of differentiating improvements/innovations 22

4.1.4 Assessment of company's commitment to ecological responsibility 22

4.2 CASE STUDY, THE SCIENTIFIC CONTRIBUTION 22

5 RESEARCH METHOD 24

5.1 CASE STUDY PROTOCOL 26

5.2 MARKETING AUDIT CHECKLISTS ADVANTAGES 30

5.3 QUALITATIVE STUDY AND CONTENT ANALYSIS 31

6 SUSTAINABILITY 33

6.1 THE CORPORATE SOCIAL RESPONSIBILITY 33

6.2 TRIPLE BOTTOM LINE 36

6.3 SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT 37

6.4 SUSTAINABLE MARKETING 42

6.4.1 P2 and R2 goals 43

6.4.2 Waste Management 45

6.5 SUSTAINABLE MARKETING STRATEGIC DECISIONS 49

6.5.1 The traditional marketing management model 49

6.5.2 The sustainable marketing management model 51

6.5.3 The Product-System Life-Cycle (PSLC) 53

6.6 SUSTAINABLE MARKETING STRATEGIES 58

6.6.1 Reconsidering the products in the form of services 59

6.6.2 Design for Environment (DFE) 59

6.6.3 Proactive strategies for sustainable marketing 62

6.6.4 Sustainable marketing growth strategies 65

7 SUSTAINABLE MARKETING AUDIT 68

7.1 SUSTAINABILITY AS A SOURCE OF COMPETITIVE ADVANTAGE 68

7.2 ENVIRONMENTAL PRODUCT POSITIONING ASSESSMENT 69

7.3 PRODUCT POSITIONING IN RELATION TO P2 AND R2 70

8 DELTA CAFÉS 73

8.1 OVERVIEW 73
8.2 ACCOUNTING AND FINANCIAL DATA 79
8.3 DELTA AND THE CORPORATE SOCIAL RESPONSIBILITY 83
8.4 DELTA Q 91
8.5 DELTA'S RETHINK-ECO-PROJECT 97

9 DELTA Q SUSTAINABLE MARKETING AUDIT 100

9.1 SUSTAINABLE MARKETING AUDIT SCOPE 100
9.2 ENVIRONMENTAL COMPANY CULTURE 102
9.2.1 Company environmental statement 102
9.2.2 Social and environmental reporting 108
9.2.3 Company current environmental and social programs 110
9.3 TARGET MARKETS ASSESSMENT 113
9.4 DELTA Q SUSTAINABILITY ASSESSMENT 114
9.4.1 Waste generation by product processes 114
9.4.2 Design, use, composition and terminal disposal of the product 115
9.4.3 Alternative roles of the product regarding recycling, re-utilization and materials transformation 116
9.4.4 Main product benefit to end-user changing or enhancement 117
9.4.5 Reducing/eliminating waste generation (solid or liquid) and toxic emissions from the production process 117
9.4.6 Waste produced by packaging at different stages of inbound, production and marketing processes 118
9.4.7 Reengineering of packing levels 119
9.5 PRICING ASSESSMENT 120
9.6 DISTRIBUTION CHANNELS ASSESSMENT 122
9.6.1 Boundaries imposed to Delta Q production and selling systems due distribution channels requisites 122
9.6.2 Energy and pollution intensity from raw and subsidiary material transportation to plant 123
9.6.3 Energy consumption due to distribution channels 124
9.6.4 Waste production due to distribution channels 126
9.6.5 Workforce training on environmental issues 127
9.6.6 Sustainability criteria for partners and providers selection 127
9.6.7 Reverse logistics as a cost or profit centre 128
9.7 PROMOTION AND COMMUNICATION ASSESSMENT 128
9.7.1 Delta Q's environmental and sustainable communication 128
9.7.2 DELTA historical commitment with environment and CSR 129
9.7.3 Environmental certification and labeling 130

9.7.4 DELTA's marketing channel communication on environmental and social commitment....132
9.7.5 Top management involvement regarding social and environmental communication 132
9.7.6 Sales-force sustainability and social responsibility training.....133
9.7.7 DELTA's environmental and sustainability advertising campaigns.....134

10 SUSTAINABLE MARKETING ASSESSMENT 134

10.1 DELTA Q SWOT ANALYSIS RESUME 135
10.2 DELTA Q POSITIONING: P2/R2 138
10.3 CONCLUSIONS 140

11 RECOMMENDATIONS AND FURTHER RESEARCH.....142

11.1 BUSINESS RECOMMENDATIONS.....142
11.2 DISCUSSION, LIMITATIONS AND FURTHER RESEARCH.....144

12 ATTACHMENTS.....149

12.1 DELTA ACCOUNTING AND FINANCIAL TABLE: 2003 TO 2006 149
12.2 DELTA ACCOUNTING AND FINANCIAL TABLE: 2007 TO 2009 150
12.3 DELTA RATIOS AND INDICATORS: 2003 TO 2006 151
12.4 DELTA RATIOS AND INDICATORS: 2007 TO 2009 152
12.5 DELTA ENVIRONMENTAL MANAGEMENT SYSTEM INDICATORS.....153

13 LIST OF ACRONYMS.....154

14 REFERENCES 155

15 CASE STUDY BOX INDEX.....162

Figures Index

Figure 4.1 - P2 and R2 reinforcement cycle 21
Figure 6.1 - Triple bottom line 37
Figure 6.2 – World population evolution 39
Figure 6.3 – World GDP evolution 40
Figure 6.4 - World income per capita evolution 40
Figure 6.5 - Sustainable pyramid from Vancouver county hall 45
Figure 6.6 - Traditional vs. Integrated waste management 48
Figure 6.7 - Traditional marketing management model 50
Figure 6.8 - Sustainable marketing management model 52
Figure 6.9 - Product-system Life-cycle 55
Figure 6.10 - Strategic matrix of environmentally enhanced and reinvented products 67
Figure 7.1 - P2 and R2 goals for product positioning 71
Figure 8.1 - DELTA international trading operations 75
Figure 8.2 - DELTA Iberian sales departments and distribution partners 76
Figure 8.3 - Traditional building blocks of business model 77
Figure 8.4 - Evolution of business volume (Current prices) 80
Figure 8.5 - Evolution of working force 80
Figure 8.6 - Evolution of sales profitability 81
Figure 8.7 - Evolution of financial flows 81
Figure 8.8 - Evolution assets and equity profitability 82
Figure 8.9 - Evolution of financial indicators 82
Figure 8.10 - New social and environmental business model building blocks 86
Figure 9.1- DELTA's environmental management system 103
Figure 9.2 - Energy consumption profile 105
Figure 9.3 – TOE energy consumption 105
Figure 9.4 - TOE by Tons of coffee sold 106
Figure 9.5 – CO_2 total emissions 106
Figure 9.6 - CO_2 emissions by Tons of coffee sold 107
Figure 9.7 - Packing waste production 107
Figure 9.8 - Waste production treatment 108
Figure 9.9 - Green coffee transport to plant 124
Figure 10.1 - Delta Q positioning to P2 and R2 goals 139
Figure 10.2 - Delta Q strategic environmental matrix positioning 141

Table Index

Table 3.1 - UN'S diagnostics for the need of new growth and development cycle 14
Table 3.2 - New marketing management decision boundaries 15
Table 3.3 - UN 2009 world hunger map 15
Table 3.4 New responsible principles for marketing decisions 17
Table 4.1 - Management basic goals 20
Table 5.1 – Case study protocol 26
Table 6.1 - Definition of corporate social responsibility 34
Table 6.2 - Stakeholder groups 35
Table 6.3 - Issues to be managed by marketing 41
Table 6.4 - Criteria to be met by sustainable marketing 43
Table 6.5 - PSLC stream flows 56
Table 7.1 - Sustainable marketing audit questions 70
Table 8.1 - DELTA values statement 83
Table 8.2 - DELTA stakeholders 84
Table 8.3 - DELTA responsible guidance principles 85
Table 8.4 – DELTA's coffee international certifications and standards 90
Table 8.5 - DELTA international granted certifications 91
Table 8.6 - Delta Q coffee blends and intensity 94
Table 9.1 - DELTA's environmental indicators 103
Table 9.2 - Delta sustainability report structure 109
Table 9.3 - Delta current social and environmental projects 110
Table 10.1 – Delta Q's Sustainable marketing SWOT analysis 135

1 ABSTRACT

1.1 Abstract

The financial crisis, climate change, earthquakes and global warming, almost made to forget about pollution, dry seasons and famine countries. Only the fuel price peak made way for us to become aware of resource scarcity, and in general, about global natural resources depletion, along with greenhouse effect gases and the exhaustion of earth carrying capacity.

Furthermore, become clear the mankind responsibility for this situation, and mainly the economic production models set in motion after World War II, based on cheap natural energy sources, but non-renewable.

At the core of those economic production models are the corporations, and the marketing function they perform. So, marketing management plays a determinant role for the environmental chaos where we are immersed. The new paradigm of sustainable marketing, developed by Professor Donald A. Fuller can reverse this trend, and contribute for different production models in respect for the environment.

The present case study aim to perform a sustainable marketing audit to a product-specific in order to:

1. Perform a sustainable audit to the product-specific;
2. Assess the product-specific sustainability;
3. Identify differentiation and innovation measures that can become marketing advantages;
4. Assess the product's commitment to ecological and social responsibility.

The new sustainable marketing framework was applied to the capsulated coffee brand Delta Q, from the Portuguese coffee industry leading company, DELTA Cafés.

The research produced a clear Delta Q environmental strategic positioning regarding P2 (Pollution Prevention) and R2 (Resource Recovery) basic sustainable marketing goals.

It resulted also in a SWOT analysis covering both company and the product-specific, regarding every dimension of the production and marketing processes dealing with waste generation, which allow devising a future sound sustainable strategy.

Other research findings were the opportunities to develop marketing advantages through Delta Q production and distribution processes differentiation and/or innovation.

Moreover, the research came to prove the framework operability and allowed the identification of important issues for further investigation, like cost-structure impact of the sustainable marketing approach, or the internalization of eco-cost into the product's price.

1.2 Portuguese Abstract (Sumário)

A crise financeira, as alterações climáticas, os terramotos e o aquecimento global, quase fizeram esquecer a poluição, a seca e fome em muitos países. Apenas o pico do preço do petróleo, abriu caminho para nos tornarmos conscientes da escassez de recursos e, em geral, do esgotamento dos recursos naturais globais, juntamente com os gases com efeito de estufa e do esgotamento da capacidade terra.

Além disso, tornou-se clara a responsabilidade da humanidade para esta situação e, principalmente, os modelos de produção económica implementados após a Segunda Guerra Mundial, com base em fontes de energia naturais baratas, mas não renováveis.

No núcleo dos modelos de produção económica estão as empresas, bem como as funções de marketing que desempenham. Assim, a gestão de marketing desempenha um papel determinante para o caos ambiental em que nos encontramos imersos. O novo paradigma do marketing sustentável, desenvolvido pelo Professor Donald A. Fuller, pode inverter esta tendência e contribuir para desenvolver modelos de produção diferentes em relação ao meio ambiente.

O objectivo do presente estudo de caso é realizar uma auditoria de marketing sustentável para:

1. Auditar a sustentabilidade do produto-específico;
2. Avaliar a sustentabilidade do produto-específico;
3. Identificar medidas de diferenciação e inovação que possam constituir vantagens de marketing;
4. Avaliar o compromisso do produto-específico com a responsabilidade ecológica e social.

A nova abordagem do marketing sustentável foi aplicada à marca de café capsulado Delta Q, da empresa portuguesa líder da indústria de café, DELTA Cafés.

Da pesquisa resultou um posicionamento, ambiental e estratégico, claro do Delta Q em relação aos objectivos básicos do marketing sustentável: P2 (Prevenção da Poluição) e R2 (Recuperação de Recursos), como objectivos básicos do marketing sustentável.

Resultou também uma análise SWOT que abrange tanto a empresa como o produto-específico, em relação a cada dimensão dos processos de produção e comercialização que são responsáveis pela geração de resíduos e, que permitem definir uma estratégia sustentável para o futuro.

Outro resultado da pesquisa foi a identificação das oportunidades para desenvolver vantagens de marketing através de diferenciação e inovação do produto e respectivos processos de produção e distribuição.

Adicionalmente, a pesquisa permitiu concluir sobre a operacionalidade da nova abordagem do marketing sustentável e identificar questões importantes para futuras investigações, tais como o impacto do marketing sustentável na estrutura de custos, ou a internalização dos custos ecológicos no processo de formação do preço do produto.

2 ACKNOWLEDGMENTS

This work is dedicated to Beatriz, Miguel and Dinis, who deserve to enjoy the planet as much as we have done, and to whom we have the responsibility to assure their education and ability for further protecting the earth ecological systems.

For the accomplishment of this research project, several beloved people have contributed, whether with work, ideas, knowledge or hard motivation. To them all I send my deepest thanks. For some of them, taking the risk of forgetting someone unintentionally, I would like to express my special gratitude:

The Professors Margarida Duarte, João Mota e Luíz Moutinho, for the scientific thinking, they taught me;

The Professor Carmo Leal for her patience and attention to detail;

To Nadir for her role in my life and by encouraging the birth of this project;

To Paula, Wilma and Teresinha for keeping me in my toes to get the job done;

To my mother for the proper and delicious feeding during the long nights working;

To Nélia who endured many weekend absences, for listening actively my outbursts and for being the person as dear she is.

I also wish to thank to Delta Cafés team who supported this project with enthusiasm and commitment: Rui Miguel Nabeiro (CEO), Marco Miranda (Head of R&D) and Isabel Ramalhete (Delta Q PM).

I do believe that my generation holds a special responsibility before the ones to come and for the planet's future. Never before, was so clear and grounded the harm done by mankind to ecosystems due to intensive earth resource exploration and mass industrial production. However, ever like the present, was possible to face the challenge of reversing the trend and act responsibly on the natural environment.

It is my firm wish to have contributed to such endeavour, within the marketing field, which has been my professional life for the last twenty years.

3 INTRODUCTION

Contemporary media review patent a changing world, immersed in deep financial and energetic (or fuel) crisis, natural cataclysms like earthquakes, tsunamis, and climate change, along with dramatic advances in medicine, science and communication technologies, in particular. Nevertheless, there are another media news that suggest old stories. Like the ones of regional conflicts that keep arising trough all the emerging and less developed economies (or countries, for this purpose). Middle and near East, or Sub-Saharan African countries, continue to face a severe food crisis as for the last thirty years. Despite phenomenal economic advancements in Asia's region, some countries do still face high rates in child mortality. The same general description could be as well applied for middle and far-east, or Central and South America (Latin America). UN estimates that more than one thousand million persons were suffering from hunger in 2009, and over than two thousand million persons are living with less than one USD per day.

The need for a new economic growth era, well foreseen by the Brundtland commission report for UN back in 1987, is today more needed than ever. However, this growth is to be achieved with innovative economic and production models, once the planet's resources (which have sourced prior economic growth during twentieth century) are in danger of total depletion. Especially the absence of new reserves of cheap energy sources, like crude oil and coal requires sustainable development and growth models.

Moreover, climate change due to human production activities mainly related to fossil fuels burn and other toxic gas emissions by mass industrial activities, determine radical new approaches to the problems of economic production and distribution, energy sources. This new paradigm provided the foundations for marketing, once part of the problem (by the main focus on the demand increase for consumption), to become an active part of the solution. This paradigm embodies the Sustainable Marketing approach and provides effective tools for marketers to enforce social and ecological responsibilities.

Sustainable marketing audit is the first step for designing a complete strategic sustainable marketing plan. It corresponds to the diagnostic task and provides a comprehensive interpretation of a company's stand, commitment and involvement with ecological concerns.

The emergence of greater widespread demand for better living conditions regarding fundamental human rights like caloric and vitamin quality feeding; general health care and education, along with human development dimensions in order to promote and maintain peace, brought the necessary conditions for new social goals. Those goals include governance, business and other organizations, both at national and international levels.

A new self conscience has risen into collective responsibility, spreading from self action accountability to social and organization responsibility on actions and on resources use (human, technical or/and natural). On another side vast regions of the globe remain incapable to get rid of tribal conflicts, local or ethnical wars, and to climb the development ladder towards human rights respect, democratic elected governments, education and general better welfare for the people. It thus became wide exposed to natural catastrophes like earthquakes, prolonged dry seasons and extreme food shortage, giving place to an endless down-cycle of lesser economic growth, greater poverty, more hunger, armed conflicts… and so on.

Wrapping the human/social issues above, the ecological earth systems become more stressed and depleted. Atmospheric pollution reducing solar UV radiation[1] protection, Ozone layer diminishing, fisheries impoverished, global warming by greenhouse gases releases and weather climate change, became too familiar and close jargon, that most of

[1] Radiation at the longer UV wavelengths of 320-400 nm (nanometers, or billionths of a meter), called UV-A, plays a helpful and essential role in formation of Vitamin D by the skin, and plays a harmful role in that it causes sunburn on human skin and cataracts in our eyes. http://earthobservatory.nasa.gov/Features/UVB/, 14/3/2011.

the times none (persons, organizations or governments) really notice and take care, for both meaning and tremendous dangerous consequences of not acting.

International organizations like the UN and the European Commission (also considering their respective branches as the World Bank, WHO, UNICEF, the European Investment Bank, among others) have called companies, and other non profit and non governmental organizations and institutions, to help solving the most critical problems humanity is facing nowadays. This involvement of supra-national organizations, enterprises and governments has given rise to a multiplicity of concepts and methods of approach to a full and detailed diagnosis of what to do, how to make and how to fund what needs to be done. It was built so the notion of corporate social responsibility (CSR).

One can remounts the birthplace of this international movement transverse to organizations, companies and governments in the well-known 1987 Brundtland Report for the UN commission on the environment and development. This report has identified for the first time at a global level, the following issues that confront and resolve, urged to ensure the survival of humanity and improving their quality of life:

Table 3.1 - UN'S diagnostics for the need of new growth and development cycle

1.	The absolute difference between the North (developed) and the South (still in development);
2.	The incapacity of the latter to provide minimum levels of welfare to launch their own development processes, especially in the areas of food, health, education, economic growth and viable investments;
3.	The need to protect the environment and stop the depletion of natural resources of the planet in order to ensure the future generations welfare;
4.	The need to launch a new era of growth/economic development with a new production model that respects the environment, based on technology that would ensure the welfare of humanity without exhausting natural resources or impair life ability, (which is) reducing and preventing pollution.

This is the concept of sustainability at a global scale and constitutes the foundation for organizations and business companies' new paradigm. As well as for development of economic activities/production on a global scale and in a comprehensive manner ranging from the private issues to public or governmental, characterized by:

Table 3.2 - New marketing management decision boundaries

• Responsibility for the living conditions of future generations;
• Respect for the environment;
• Steady (and sustainable) economic growth.

Confirming the relevance of the diagnosis it came to check on global warming and ecological disasters resulting in carrying capacity[2] exhaustion (and almost extinction of some species) of the once considered inexhaustible ocean; continued power crisis; inability of an expanded group of countries to launch and sustain their own development processes and economic/social growth, and even democratic government systems. Weather climate change caused long dries followed by formidable storms and floods. The map of world hunger in the report of the World Food Program from UN for 2009 outlines the following scenario of world population suffering from hunger:

Table 3.3 - UN 2009 world hunger map

Asia and Pacific	642 million
sub-Saharan Africa	265 million
Latin America and the Caribbean	53 million
North Africa and Near East	42 million
Total	**1.002 million**

[2] Carrying capacity refers to the number of individuals who can be supported in a given area within natural resource limits, and without degrading the natural social, cultural and economic environment for present and future generations. Global development research centre: http://www.gdrc.org/uem/footprints/carrying-capacity.html, 14-03-2011.

These figures account for almost 15% of world population! Global communications and international financial flows allowed to spread to the world the banking system's crisis, otherwise it would only be a USA national problem, with limited impact on some more exposed economies. In reality, the less developed economies are also suffering with the alien greed.

On another hand, the success achieved with the global fight against aerosols with CFC´s[3], which were to degrade the ozone layer[4], confirmed that humanity already has (at least in some cases) the diagnostics capabilities and effective tools for intervention/resolution of environmental problems at a worldwide scale.

Recent diagnostics, well grounded on valid scientific research, demonstrated economic and business downgrade due to natural resources exhaustion. Despite the widespread appeal from civil society, academia and a few politicians, the production models of the past century (based on the intensive exploitation of natural resources and non-renewable energy sources), still remain active and facing strong barriers to be abandoned. Resistances to change is forceful and only recently have been conceptualized models to accelerate necessary change in a world that is also changing the dynamics of economic and business growth, social and ethical behaviour, and new life standards that people and organizations aim to satisfy.

---

[3] CFC's – Chlorofluorocarbons are a family of non-reactive, non-flammable gases and volatile liquids. Because of their properties they are used in a multitude of applications… The non-reactivity of CFC's, so desirable to industry, allows them to drift for years in the environment until they eventually reach the stratosphere. High in the stratosphere intense UV solar radiation severs chlorines off of the CFC's, and it is these unattached chlorines that are able to catalytically convert Ozone molecules into Oxygen molecules. http://www.nas.nasa.gov/About/Education/Ozone/history.html, 10-03-2011

[4] According to latest data from SCAR – Scientific Committee on Antarctica Research and NASA Ozone Hole Watch, ozone hole over Antarctica has been effectively dropping after the original Montreal Protocol was signed in the fall of 1987, based on negotiations started between European, Scandinavian countries and the USA over CFC's in aerosol sprays in 1983. The protocol has gone through a series of revisions […] as new information from science and industry has become available. The latest one, held in Copenhagen in November of 1992, laid down the most stringent CFC phase-out schedule for CFC's for the world to date; and was signed by over 100 nations representing 95% of the world's current CFC consumption. http://www.nas.nasa.gov/About/Education/Ozone/history.html, 14-03-2011

The growing needs and increasing desires of consumers, given the new paradigm of sustainable development and the emergence of CSR, clearly defines the fresh context and boundaries for management and marketing management decisions for companies and professionals with responsible attitudes in face of the renewed challenges.

According to several authors (Fuller, 1999; Van Dam and Apeldoorn, 1996 and Porter, 1991) sustainable marketing (considering marketing as the main management approach to daily business decision trough competitive and successful companies) is the most appropriate framework to ensure:

Table 3.4 New responsible principles for marketing decisions

• Compliance with the new restrictions (and opportunities) on environment and ecology.
• Meeting consumer-markets and business growing demand.
• Effective Social Responsibility actions.

The decisive importance of these issues has received considerable attention of the academy, translated into a vast output of research and thesis. The most prevalent marketing approaches to CSR and environmental issues have been on the differentiation and communication of companies and brands associated with social causes. These promotion efforts aim to obtain some marketing differentiation or to leverage advantages, trough advertising on green or environment friendly features. This is the paradoxical[5] case of BP re-branding from British Petroleum to Beyond Petroleum, or the case of Portuguese electricity producer EDP massive advertising and international recognition on green company and major renewable energy producer, but who, nevertheless, still operates coal and fuel power plants.

[5] Paradox – …group of premises apparently indisputable leading to inacceptable or contradictory conclusions. (Blackburn, Simon, The Oxford Dictionary of Philosophy, , Oxford university Press, 1994).

According to Ottman (2006) aside from offering environmental benefits that do not meet consumer preferences, green marketing myopia can also occur when the products fail to provide credible, substantive benefits for environment. Which become ecological and managerial useless for as much as those strategies fail to prevent pollution, waste stream generation, nor promoting resource recovery (Fuller and Gillett, 1999), and fail to achieve company's marketing targets.

The present research assumes the stand point about sustainability construct as environmental based, and wish to investigate the impact of the new ecological decision boundaries in the marketing management processes to produce better (or improved) environmental-friendly products, benefits and to reduce waste generation, without losing of sight the traditional marketing management objectives.

4 RESEARCH OBJECTIVES

At the heart of productive activity and trade of goods and services is the MARKETING, which has gained preponderance increasingly dilated in the daily management of business (Kotler and Keller, 2005). Therefore, the marketing is in the pivotal position to enter and lead this paradigm shift of production operations and of marketing decisions across businesses. (Fuller, 1999). By evolving towards sustainable marketing, companies can pursue their traditional goals within a new ethical[6] framework defined by the new social responsibility and environmentally sustainable principles.

[6] Ethics - (from the Greek *ethos*, character) Study of the concepts involved in practical reasoning: good, right action, obligation, virtue, freedom, choice. Ethics of Management - The branch of ethics that analyzes the problems and dilemmas created by the practices of management, for example, the social responsibilities of enterprises, the appropriate limits acceptable to the competition(Blackburn, Simon, The Oxford Dictionary of Philosophy, Oxford university Press, 1994).

4.1 Sustainable marketing case study objectives

The present work, under a case study approach method, holds four central objectives to achieve. The first is to perform a product-specific sustainable marketing audit. The second is to perform a sustainable marketing diagnostic. The third deals with the possible identification of improvements/innovations which can become a product's (or company's) of marketing differentiation or advantages. And the fourth is the assessment of the company's commitment to ecological responsibility. These objectives are fully detailed in the following chapters.

4.1.1 Product-specific sustainable marketing audit

Present research substantiates the implementation of the new approach proposed in 1999 by professor Donald A. Fuller from University of Central Florida – College of Business Administration, in his book "Sustainable Marketing: Managerial - Ecological Issues", 1999, in a sustainable marketing audit to a product-specific. In this case, to the Portuguese capsulated coffee brand Delta Q, to assess the brand's compliance with sustainable marketing decision's boundaries:

1) Compatibility with the ecosystem;
2) Product-System Life-Cycle (PSLC) of the product;
3) Respect for the balance of ecosystems[7], in all marketing management decisions.

The fundamental research question the study aspires to investigate is to discover and describe how Delta Q operationalize sustainability, in order to achieve business goals in balance with the new boundaries for marketing management regarding the environment.

[7] "Ecosystem is a complex system composed of two elements in constant interaction: (1) an environment of a physical-chemical (moisture + light + salinity + temperature + pressure + soil + ...), abiotic (without human influence), and well delimited in space and time, which is called Biotope, and (2) the set of living beings, or Biocenosis that inhabits this biotope. It is the basic functional element of the biosphere. It is maintained by a flow of energy and matter between these different components in permanent interaction." Isabel Mendes, 2010, Seminar "Valuing Nature", ISEG, January 13, 2010

Another important issue to research is to find out if operationalization and investment on systemic controls to manage and monitor the marketing management paradigm towards social responsibility and sustainability can somehow, re-engineer the business model and processes to achieve better efficiency and profitability.

A third issue the present research also aims is to help defining a new set of tools to assess global products, services and business performance and results, not only trough the fine monitoring of ecologic and social boundaries to be respected but, and most important to produce and deliver increased value (throughout the value-chain) to customers, stakeholders, shareholders, and environment.

4.1.2 Sustainable marketing diagnostic

The sustainable marketing audit will allow setting the current position of the product-specific environmental strategy in the matrix of environmental reinvented or improved product's strategic guidance, with regard to the basic strategies of the new paradigm:

Table 4.1 - Management basic goals

P2 Pollution Prevention	R2 Resource Recovery

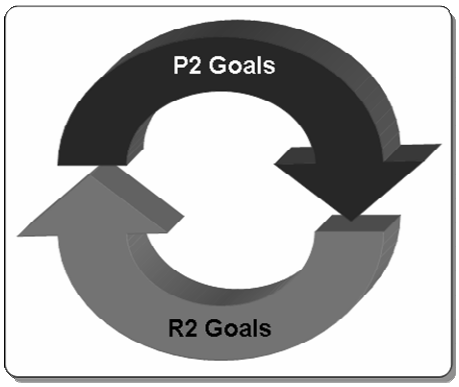
To do so, will be used a marketing audit check-list expanded by sustainable marketing principles and assumptions: the ISO 14001 (International Standards Organization) norm, the GEMA (Global Environment Management Audit) audit check lists, CSR Europe sustainable marketing management principles and EMAS (Environmental Management Audit Scheme) audit checklists.

P2 goals (and subsequent strategies) deal with actions and projects to prevent pollution. It is a proactive set of measures to act before pollution and waste are generated. Of course it also contains steps and programs aimed for reducing waste/pollution or to increase waste

recyclability (and sometimes reuse) or pollution treatment or further sequestration. Effective P2 strategies reduce the need for future heavy R2 actions or investments.

R2 goals (and subsequent strategies) consist of corrective measures on current products and processes in order to consume lesser resources or to incorporate already used resources (re-use) from the product's processes (or from other product production processes). Hence, in a certain way, R2 strategies also can help effectiveness of prior P2 goals. Moreover, proper P2 strategies make easier to achieve R2 goals. Taking together P2 and R2 strategies reinforce each other goal achievement; therefore, they are fundamental to a successful sustainable marketing strategy.

Figure 4.1 - P2 and R2 reinforcement cycle



The diagnostic resulting from the sustainable marketing audit will permit an in depth and comprehensive knowledge and understanding of company's position and effective use and respect for social and ecologic boundaries, particularly as regards to:

1) Respect for the environment, in terms of preventing pollution (P2) and resource recovery (R2);

2) Responsibility for the living conditions of future generations;

3) The extent to which is possible to attain a constant and sustainable economic growth.

With this characterization is possible to identify company's strengths to draw a successful sustainable strategy able to deliver increase value for customers, company and environmental protection.

4.1.3 Identification of differentiating improvements/innovations

The audit should also allow identifying the strengths and weaknesses for the product (or sometimes for the company), which compared with the external macro environment (constraints and opportunities) may set the bearing for the future sustainable marketing strategy of product-specific audited.

Another source of differentiation that sustainable marketing audit method can provide, relates to product's (or product's subsidiary) utility or benefits enhancement. Distribution systems and packing processes and requirements can also constitute important sources of marketing differentiation strategies and even lowering cost structures.

4.1.4 Assessment of company's commitment to ecological responsibility

The product-specific sustainable marketing audit process should allow to understand, through documentation content analysis, the company involvement with ecological responsibility. Detailed content analysis of the interviews will provide some "indicators" (essentially qualitative), which will assess the degree of CSR and sustainable marketing integration on decision-making processes of marketing, management (including top-management) and employees in general, on a day-to-day basis.

4.2 Case study, the scientific contribution

This research project on sustainable marketing has it main contribution to the level of Strategic Marketing Planning, once it is an empirical test for the strategic marketing

planning, development and implementation for a product-specific under this enhanced diagnosis and strategic planning framework.

The final report shows a clear characterization of the current position of the product-specific audited in accordance with the new model of marketing management development and decision, with regard to P2 and R2 goals.

Another expected result is to identify the strengths of the marketing process and associated opportunities, to serve as a starting point for the construction of the strategic marketing planning for Delta Q.

As far as it could be ascertained, the application of this method of strategic sustainable marketing diagnostic is unprecedented in Portugal, hence its importance emerges also from the ability to provide effective tools to make incremental changes on everyday marketing management decisions, thus incrementing profitability and reducing the ecological footprint.

Let's assume for a moment that a leading company from a bigger market than the Portuguese, by restructuring its distribution operations based on lorry logistics by better on-line purchase orders and rationalized distribution routes, achieves a 10% diesel saving. Thus after a complete financial year, company would evidence increased profits.

As a result it would reward shareholders with larger profit distribution, and stock prices would also be higher, providing company with better funding options.

At the same time trough, an active partnership strategy with the software provider based on international positive referral, other industry companies from abroad start to replicate the project and achieve identical diesel savings on their operations. If the model could be replicated for other industries and markets, soon there would be a global diesel demand decrease.

The benefits are self evident: increased company’s profitability, higher stock prices, larger and cheaper funding availability, less energy consumption, lesser carbon monoxide

emissions and negative demand pressure on oil markets that would eventually redound in oil prices dropping.

The power of incremental improvements lies in their total sum. The result of these improvements in each industrial process, in each distribution system, in the way a product is consumed or disposed, towards environmental protection, or lesser waste generation, or fewer natural resources used, will end up in major impact on ecosystem balance, in human environmental life quality, and at the end in a better and sustainable planet.

Sustainable marketing framework for strategic marketing planning and decision can ignite a virtuous cycle of change to foster greener products, with more benefits for consumer and less ecological impact. This innovative approach can effectively be the cradle for a new growth era, based on respect for environment and people who need it to the pursuit of life quality and well being.

5 RESEARCH METHOD

The selected approach is the case study method. Although research based on case studies is acceptable for a relatively short time in the Portuguese universities, in other foreign universities it has been practiced for long and accepted as a methodology for valid scientific research, with valuable and robust findings. Such is the case of Harvard University and countries like Sweden or Finland (Carson, Gilmore, Perry, and Gronhaug, 2001).

The absence of previous publications or other case studies in a relevant field or discipline as new as sustainable marketing is, suggested the need for an exploratory study aimed at defining the precise contours of the management problem and the implications for marketing management processes development.

Developing solid exploration work will enable the preliminary knowledge body to strengthen further quantitative approaches, which might allow the development of models to support and enhance the process of decision making in the context of strategic planning for sustainable marketing and environmental responsibility.

The opportunity for a descriptive study, according to Malhotra and Birks (2006), also emerges from the need of studying and interpreting the phenomena within the business environment, where sustainable marketing processes and decisions are made.

The essence of daily management interaction with whole stakeholders is particularly suitable to case study research, once it allows investigating and documenting the involvement of people in the dynamic environment of the phenomena, not running the risk of ignoring their capacity to reflect on the problems of the situation and interact on them (Robson, 1993).

Case study research does not necessarily follow a rigid positivist stand, based on the strength of phenomena observation to extract patterns and theories, which are assured through quantitative internal and external validity (Campbell, and Stanley, 1963). However, it neither means that the preference for a more qualitative approach to the study of phenomena associated with the marketing strategies development is a pure relativistic interpretation of individual cases, regarding social and ecological responsibility.

Considering that any type of business optimization or decision-making support is necessarily contingent and the result of systemic processes, the approach through case studies ensures a degree of neutrality between the two paradigms, providing a comprehensive interpretation of the phenomenon in its real context (Myers, 2000).

5.1 Case study protocol

Case study method approach holds only one similarity with a survey-questionnaire: both aim to a single data collection (Yin, 2009). Beyond that, everything is different and complies with distinct objectives and requirements. A case study protocol contains the objectives, the rules and procedures to be respected in the process of comprehensive data gathering.

Moreover, it is to be used by the researcher as a kind of a "script" and not to be presented to the subject interviewed has a means of answer registry. Thus the case study protocol is a major way to increase the research robustness and reliability (Yin, 2009).

Following is the protocol developed for the present research on Delta Q sustainability assessment and positioning against P2 (pollution prevention) and R2 (resource recovery) basic goals for sustainable marketing:

Table 5.1 – Case study protocol

Management Problem	To approach the positioning of Delta Q coffee capsule in the strategic product environment matrix in relation to Basic sustainable marketing goals P2 and R2.
Research Problem	To develop a sustainable marketing audit of the capsulated coffee from DELTA Cafés, branded Delta Q.
Case Study objectives	a) The sustainable marketing audit is an exploratory and descriptive study of the phenomena and issues arising from a product-specific positioning in the strategic-environmental matrix, and subsequent available strategies to develop. b) Sustainable marketing diagnostic.

	c) Identification of differentiating improvements/innovations. d) Assessment of company's commitment to ecological responsibility.
Analysis unit	The study is to be developed onto a product-specific in the business company current operational context: Sourcing raw materials, processing them, packaging and storage, promotion, selling and distribution, while developing company's projects towards sustainability and social responsibility.
Type of research	Phenomenological research by the means of Case study.
Number of cases	One pilot case study.
Study environment	Company day-to-day business. Environment not contrived.
Researcher interference	Without researcher interference or minimal, due to his presence and active questioning. Without variables manipulation.
Data Collection	a) Deep driven interviews with: ◆ Delta Q's Business Unit Manger, top responsible manager for the whole Delta Q affairs; ◆ DELTA's Innovation and Development Manager, responsible for the design of Delta Q concept and for the program Rethink-Eco-Project. b) Secondary data collection and content analysis. c) Company overview:

	◆ Industry; ◆ Specific business; ◆ Business volume evolution; ◆ Number of employees evolution; ◆ Financial and profitability indicators evolution. d) Delta Q overview: ◆ Specific product characterization and issues; ◆ Market segments and channels; ◆ Promotion and distribution issues. e) Rethink Eco-project overview: ◆ Main tasks to accomplish; ◆ Partners; ◆ Milestones. f) Content Analysis: ◆ Responsibility reports: 2003, 2005, 2007and 2009; ◆ Annual accounts report: 2003, 2004, 2005, 2006, 2007, 2008 and 2009; ◆ Norms GEMA/ISO 14001, ISO 9001; ◆ Internet Websites from company and competition; ◆ Industrial processes – *in situ;* ◆ Productive processes waste generation – *in situ.*
Sustainable marketing audit	a) Scope of sustainable marketing audit. b) Company overall assessment ◆ Company environmental statement and reporting ◆ Company current environmental and social programs

	c) Delta Q's target markets (or market segments) assessment d) Product assessment (Delta Q): ◆ Waste generation by product processes; ◆ Design, use, composition and terminal disposal of the product; ◆ Alternative roles of the product regarding recycling, re-utilisation and materials transformation; ◆ Main product benefit to end-user changing or enhancement; ◆ Reducing/eliminating waste generation (solid or liquid) and toxic emissions from production process; ◆ Waste produced by packaging at different stages of inbound, production and marketing; ◆ Packing levels reengineering. e) Pricing assessment f) Distribution channels assessment: ◆ Boundaries imposed to Delta Q production and selling systems due to distribution channels requisites; ◆ Energy and pollution intensity from raw and accessory materials transportation to plant; ◆ Energy consumption due to distribution channels; ◆ Waste production due to distribution channels; ◆ Workforce training on environmental issues; ◆ Sustainability criteria for partner and providers selection; ◆ Reverse logistics as cost or profit centre. g) Promotion and communication assessment: ◆ Delta Q's environmental and sustainable communication; ◆ DELTA historical commitment with environment and CSR; ◆ Environmental certification labelling; ◆ DELTA's marketing channels communication on

	environmental and social commitment; ◆ Top management involvement regarding social and environmental communication; ◆ Sales-force sustainability and social responsibility training; ◆ DELTA's environmental and sustainability advertising.

5.2 Marketing audit checklists advantages

According to early definitions of marketing audit, such as Schuman (1959), a marketing audit is a systematic, critical and impartial review and appraisal of the whole marketing operation's structure, which comprehends the basic marketing objectives and the policies implemented to achieve them.

Kotler and Kelller (2006) still go much in the same direction as prior author definitions considering that a marketing audit is a comprehensive, systematic, independent and periodical assessment of environment, strategies, objectives and marketing operations of a company, in order to find problematic issues and opportunities as well as to recommend an action plan examination to improve marketing performance.

Its primary purpose is to identify under-utilized marketing resources and generate recommendations for ways in which more effective use could be made of these resources (Brownlie, 1993).

The present research in the light of the new environmental and social responsibility paradigm, aims to identify the environmental protection and sustainability development commitment level of the company, regarding people and natural resources. To achieve this goal the research makes use of the sustainable marketing audit checklists, within the framework of sustainable marketing approach.

The use of audit checklists is widespread and is a common approach to classical marketing audits. According to Brownlie (1993) it comprises the following advantages:

1) Using already audited and grounded as important issues to investigate;

2) It assures no important issue is omitted;

3) It encompasses background philosophy and theories, important for the goals of the auditing process. Moreover, the use of checklists provides a simple scheme and complete data-set to compare to other audits and benchmark.

Nevertheless, a product-specific sustainable marketing audit is essentially a qualitative and interpretative approach to understand clearly the ecological burden posed by the product, due to its production, marketing and consumption; and determining the product's position in the strategic environmental matrix in order to draw a suitable and effective sustainable marketing plan. Hence sustainable marketing audit to a product-specific should be conducted by fully understanding each stage of the product (regarding PSLC) against P2 and R2 goals.

The present work does not conclude with a set of statistical analysis on the audit checklists answers gathered, like Brownnlie (1993) proposed. It rather presents a relevant interpretation of product (and company) level of sustainability commitment, or in other terms, the ecological impact of product's utility. Hence findings about resources use and waste generation, became classified as strengths/weaknesses or opportunities/threats, depending on the firm ability to implement realistic P2 and/or R2 solutions as a marketing response (Fuller, 1999).

5.3 Qualitative study and content analysis

The use of content analysis method is especially adequate for the purpose of the present research due to its descriptive and exploratory nature, reinforced for the novelty of the framework applied. Content analysis is the logical method for such a qualitative research,

since it aims to interpret and gain full perception of a given reality or process dynamics (Krippendorf, 1980 and Weber, 1990).

The present exploratory work aims to position the product-specific in the P2/R2 strategic matrix in order to determine the range of strategies available for planning an adequate sustainable marketing plan. However, since there are no prior works of the same nature regarding P2 and R2 positioning, or even a solid set of indicators to benchmark against, thus falls inevitably in the qualitative data analysis by means of relational analysis towards gaining full understanding of the sequential stages of product, from the cradle to grave, i.e. from green coffee to used capsule collection and dreg valorization.

As exploratory work, full description of the phenomena is critical inasmuch as further work and research can be grounded on a robust management problem definition, completely documented and clearly explaining how each selected issue is related in the product's processes.

Multiple sources of evidence were used to achieve comprehensive understanding of responsibility and environmental policies implemented by DELTA. Primary main documental source was the annual reports from the company: accounting reports from 2003 to 2009, and responsibility reports from 2004/2005, 2006/2007 and 2008/2009.

Another important primary source was the deep guided interviews with the Innovation and research manager from DELTA, using the audit checklists as a guide in order to fully understand each issue on its own, and in relation with the overall Delta Q production and marketing processes, which resulted in more than six hours of tape recordings that were subsequently analysed and registered in chapter 9.

Accounting data was assembled in the form of summary tables (presented on chapter 12 – Attachments) covering balance sheet and P&L[8] account aggregates, followed by main

[8] P&L stands for profit and losses.

profitability and financial indicators. This data set was brought for the report body and analyzed in chapter 9 under graphical presentation for easier trend perception and company performance evaluation.

Secondary documental sources like magazine articles, interviews and company press releases were also used. They are listed in the bibliography and there enclosed copies in the case study box.

6 SUSTAINABILITY

Despite sustainability being nowadays widespread from media to technical and academic works, there is a large latitude for the term use. Therefore, a detailed review of the concept and its evolution is further developed in order to restrain the concept definition central for present research.

In the present work, the term “sustainability” does not refer to the economic, tax, social security or financial ability to self-support in following years. For this research, the term sustainability means the global ecosystem ability to regenerate and survive, despite the human activity's harmful impact on them.

As it will be further discussed, environmental sustainability can be positively impacted and enhanced trough incremental innovations and behaviour changes, as long as they are integrated, designed and implemented from an early project stage. The necessary manner and framework for marketing management to accomplish such a goal is discussed in the following chapters.

6.1 The Corporate Social Responsibility

Recent years have been fruitful in bringing into the focus of media, international conferences and legislation, issues related to CSR. One can find it everywhere, from the

NGOs[9] to the internationally academic production. At the time of this writing, Google lists 301.000 entries to the term "Corporate Social Responsibility" in Portuguese language. The same search in English language returns no less than 7.300.000 entries.

When one think of the meaning of the term, it seems clear that it refers to the responsibility that companies should have in society. This is, regarding people. However, people are the world! A company cannot be responsible for the world. Or, can it? To what extent could this responsibility belong to business companies?

The term "corporate social responsibility" was coined by H. R. Bowen in 1953, with a view of social obligation. In this early meaning, companies should pursue policies, take decisions or follow the line of action which is desirable in terms of values and goals for the society (Turker, 2009). In 1979, Archie B. Carroll set out three main areas of obligations in respect of CSR, resumed in the following table:

Table 6.1 - Definition of corporate social responsibility

1. Economic obligations- economically viable producing;
2. Legal and ethical obligations - compliance with laws and recognition of social norms and values;
3. Philanthropic obligations- proactively return to society.

In the mid-nineties of the XX century, many authors have argued that the term "obligation" was insufficiently precise to be applied effectively in the management of corporate social responsibility (Clarkson, 1995; Donaldson and Preston, 1995). Therefore, it was suggested that the companies would have to be accountable for society, not as a

[9] NGO's – Non-governmental organizations are generally considered to be a non-state, non-profit, voluntary organization. As a non-state entity, an NGO is generally independent from government influence and either not established by a government, or intergovernmental agreement, or, if established in such a manner, is not independent of such influence. As a non-profit organization, or "nonprofits distributing," an NGO does not distribute profit to its partners. (NGO Handbook, http://www.ngohandbook.org/ index.php?title= What_are_Non-Governmental_Organizations_(NGOs)%3F), 17/02/2011.

whole, but only to those who are directly or indirectly affected by the company's operations. They are called "stakeholders"[10]; Henriques and Sadorsky (1999) divided them into four groups:

Table 6.2 - Stakeholder groups

1. Organizational - employees, customers, suppliers, shareholders;
2. Community - local residents, special interest groups and generic;
3. Regulators - local/national legislators and standards (at local, national, and international perspectives);
4. Media Stakeholders.

A more structured corporate social responsibility understanding was won and therefore, liable to be (better) managed. Still, business continues towards a concept which focuses on the interests of the company (Jones, 1995), which lacks intrinsic motivation for the implementation and enforcement, as an active operating and decision-making model.

Measures of flexibility towards employees or philanthropic activities and donations to charities, may well be the only way a company has to act according to the social norms and value systems in each location and cannot move from a paternalistic expression of corporate power (Swanson, 1995).

The various presented approaches regarding the concept of social responsibility demonstrate the wide interpretive latitude that the concept still has, even after more than fifty years passed over its creation. Even though others have identified this gap (or flaw) and argued that the concept of social responsibility requires being better operationalized

[10] Stakeholders - This concept refers to the idea that the company's operations depend on the interaction of various groups and individuals, whose result is greater than the sum of the parts and include: customers, shareholders, employees, suppliers, government, competitors and others (Charter, Martin; Peattie, Ken; Ottman, Jacqueline and Palonsky, Michael J. 2002).

through the assessment and management of the environment, as a way of reaching a stage of pro-active social responsibility. (Wartick and Cochrane, 1985; Wood, Donna J. 1991). Moreover, the many definitions of CSR seem to wind up a redundancy, especially if one defines marketing as the process of meeting the needs of consumers, where they want, which way they prefer, with the necessary information and the appropriate price to remunerate the factors involved in meeting these needs (Kotler and Keller, 2005). So the corporate social responsibility is fulfilled by the prosecution of the marketing management process by itself. Thus marketing management already should be aligned with social responsibility and environmental protection objectives.

6.2 Triple Bottom Line

More recently, with the advent of the so-called NGO's in the field of cooperation and development, it was possible to understand and operationalize the concept of CSR. Three guiding principles of the operation and management processes arise:

1) Social - employees, customers, local communities, respect for legal and cultural values;

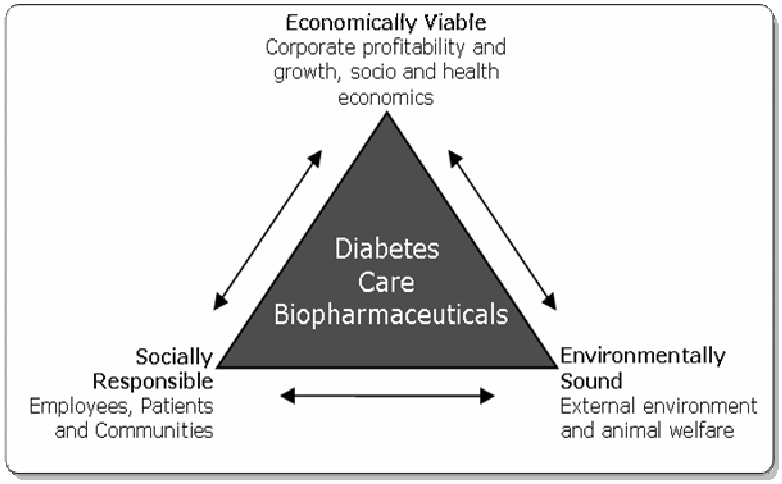
2) Respect for the environment;

3) Economic - to maintain and ensure the economic viability/financial operations of the company.

In short, those issues can be referred as TRIPLE BOTTOM LINE: People, Planet and Profit.

Marc J. Epstein (2008) in his landmark book "Making Sustainability Work" presents the interpretation of this approach by pharmaceutical company Novo Nordisk's in relation to its business unit of biopharmaceuticals for diabetes:

Figure 6.1 - Triple bottom line



Source: Novo Nordisk's, 2005 Annual Report

Novo Nordisk's "search to conduct its business in an economically viable, socially responsible and environmentally balanced, and believe, they will be a leader in diabetes care, will create value for patients and their stakeholders." (Epstein 2008).

According to Williams, E. (2008), CSR Europe, an organization that gathers and works directly with businesses companies, governments and other organizations concerned with social responsibility in Europe, sustainability has been the central concern of the actions and initiatives of CSR.

6.3 Sustainability and Sustainable Development

So what is sustainability? The definition in the largest dictionary of the Portuguese language: "Novo Aurélio, Séc. XXI" tell us that sustainability is "Sustainable Quality". In turn, one of the definitions of "sustainable" that interests the most in this research project, tells that it is "what it can support" or what "it can keep more or less constant or stable for a long time." Nevertheless, for the purposes of this research work, will be used the definition proposed by Brundtland Commission Report (1987) for the Committee on Environment and Development of the United Nations (Chapter 3, Paragraph 27):

> "Humanity has the ability to make development sustainable to ensure that it meet the needs of the present without compromising the ability of future generations to meet their own needs."

Furthermore, the report casts a light for more detailed understanding, stating "the concept of sustainable development does imply limits – not absolute limits but limitations imposed by the present state of technology and social organization on environmental resources and by the ability of the biosphere to absorb the effects of human activities. However, technology and social organization can be both managed and improved…" Hence sustainable development aims to meet the needs and aspirations of the present without compromising the needs and aspirations of the future. Far from requiring the cessation of economic growth, it recognizes that the problems of poverty and underdevelopment cannot be solved "…without a new era of growth ..." (Brundtland Report, Chapter 3, Paragraph 28).

Thus, one can find a unique bridge between the need for ethical commitment of production operations and marketing decisions and business responsibility towards the environment, generally referred to as ecosystems and the imperatives of sustainable development.

During the evolution of humanity, different models of consumption and production have evolved. Since the trade in spices arrived in Europe by caravans that crisscrossed the deserts and mountains of near and far east and impeding in Europe by Genovese merchants and ports.

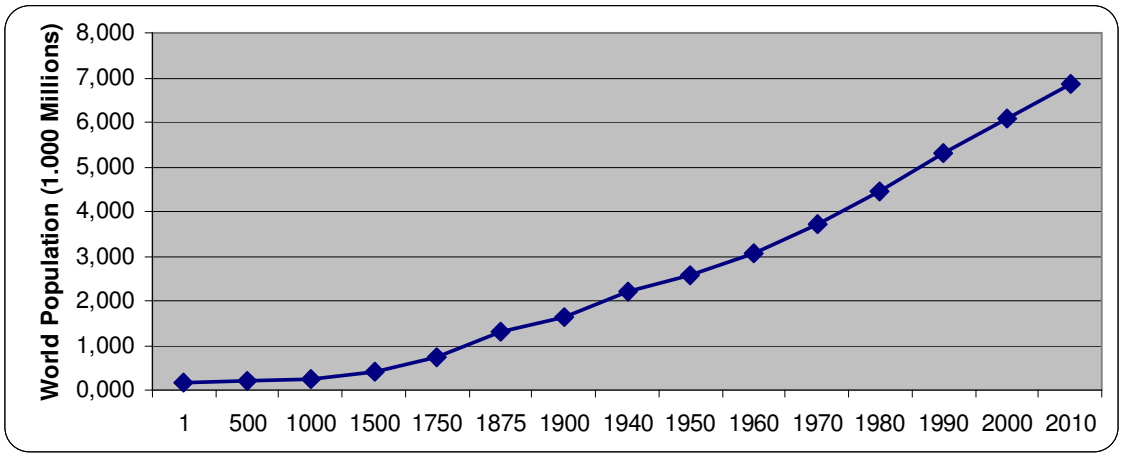
The later entry of the Portuguese in this lucrative trading, launching the Cape route (former route of Good Hope cape, now Cape Town) allowed the reduction of spices price in Europe, as well as their consumption increase.

Finally, with the industrial revolution of the steam engine and later the internal combustion engine, there were no restrictions on production or scarcity of resources, and only the economic power of markets limited their access to goods that they needed or demanded (Smith, 1776).

The turn to the twentieth century, came to change this paradigm, although mankind only realized that, on the last two decades of the century.

As the following figure evidence, the world population has suffered an explosion from the last quarter of the nineteenth century, growing more than six times in just little over a hundred years. Estimating is currently circa 7.000 million and is projected at 9.200 million people by mid-century (Robinson, 1998 and US Census Bureau – International Database, 2010).

Figure 6.2 – World population evolution



Source: 1 to 1950 series: De Long, J. Bradford (1998).
1951 to 1990 series: US Census Bureau – International Data Base, http://www.census.gov/ipc/www/idb/worldpopinfo.php, 17/02/2011.
1991 to 2010 series: World Bank, online Database, http://www.worldbank.org, 18/12/2011.

Concurrent with the population explosion there was a revolution of wealth and economic production systems associated in order to respond to growing demand on basic needs like

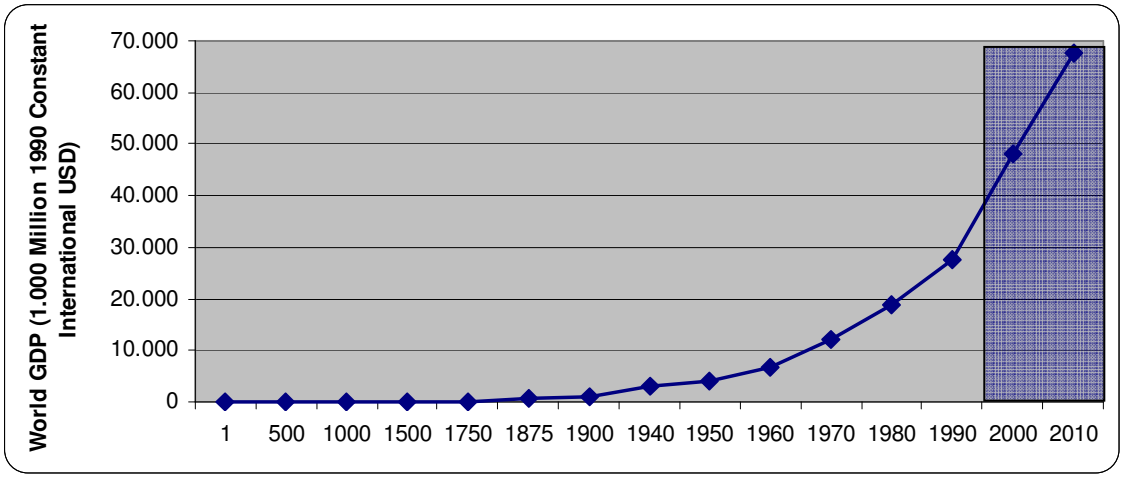
food, clothing, transport, education and health. Two major exogenous factors have contributed:

1) Technical and scientific development in conjunction with novel robust economic and management theories, which together made the way for spectacular business efficiency and national governments economic policy outcomes; and

2) The extraordinary production effort done by the United States of America, during Second World War, and the replication of the formula later, for Europe reconstruction.

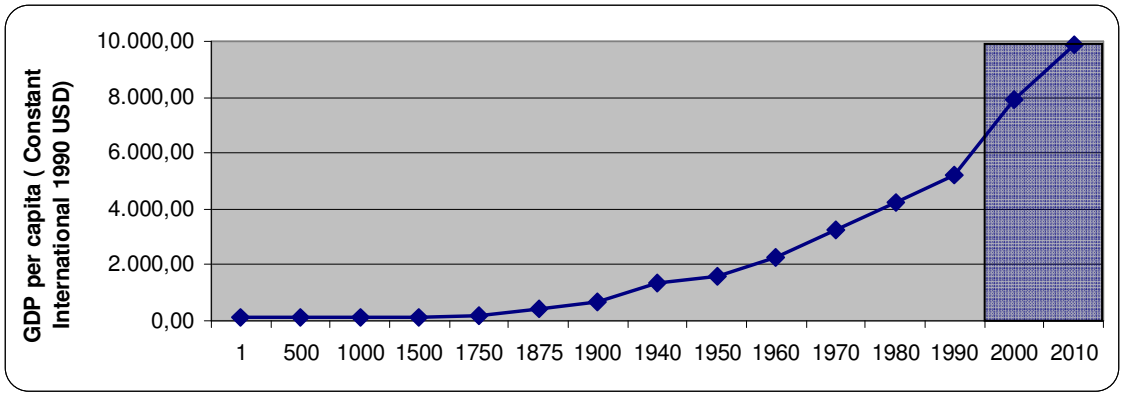
Those factors together provided the ideal conditions for amazing economic and well fair growth of the so-called western democracies, starting 1950 as following figures clearly evidences:

Figure 6.3 – World GDP evolution



Source: 1 to 1990 series: De Long, J. Bradford (1998).
1991 to 2010 new series in 2005 international constant USD - World Bank, online Database, http://www.worldbank.org, 18/12/2011.

Figure 6.4 - World income per capita evolution



Source: Calculated from data from the two previous graphs.

The damage caused to the environment resulting from the need to nurture the systems of production and consumption developed in the meantime, became a worldwide problem, both in its causes and in its consequences.

Corporations are the prevailing institutions on the planet, and thus have to deal (also) with the social and environmental problems that afflict humanity (Hawken, 1993). According to Fuller (1999), dealing with these problems means finding solutions to problems arising from the following models of production and consumption that have become widespread across the planet over the last hundred years:

Table 6.3 - Issues to be managed by marketing

1. Facilities - Operated in the environment by mining, logging, fisheries, intensive agriculture, among others;
2. Production/Processing - goods processed in factories and consumer goods/investment that fuel the trade and the global economy;
3. Waste - collective costs to industry, consumers, environment, societies and economies based on consumption and waste, generating pollution and natural resource depletion and environmental destruction. They represent the so-called "eco-costs".

Those production models could be translated into three basic questions: *What it takes*? *What it makes*? *And what it wastes*?

These are, according to Hawken (1993), the main challenges that companies have to face, and correspond inexorably to questions and issues that are manipulated by the processes of marketing management decisions. Not only the classical economic approach, assuming infinite natural resources, thereby without any value, as neither the neo-classical theories, trusting money supply and price dynamics to reflect upon markets the scarcity or abundance of a given resource, no one really considered the effective depletion of critical resources for economic and human kind survival, like water. Thus it was not taken into

account resource scarcity or further on the outcomes of consumer needs satisfaction: the associated waste production streams.

6.4 Sustainable Marketing

The marketing has to embrace the whole issue of sustainability and make their processes and activities sustainable. Like ecological systems in homeostasis[11], organisms and plants using minerals, water and other organisms in continuous and interdependent processes that generate waste and are further processed into food and fuel for a new cycle.

Thus, marketers must operate under the same principles. Its processes consume resources and generate waste, while delivering value and benefits to consumers and organizations. Now, a concern with environmental/ecological in order to maintain its balance (homeostasis) or even enrichment, is arising and gaining social, business and governments attention[12].

The term "Sustainable Marketing" was coined by Sheth and Parvatiyar in 1995 and tried to identify the manner and mean to reconcile economic, ecological and environmental issues, through the reinvention of production systems and the products themselves (Fuller, 1997). Other terms and names have been used, such as "Ecological Marketing" (Henion, 1976)", Green Marketing" (Ottman, 1993), "Environmental Marketing" (Coddington, 1993), "Eco-Marketing" (Fuller and Butler 1994) among others, which only contribute for blurring in the emerging field of marketing science (Fuller, 1999).

In this research work is used the definition proposed by Donald A. Fuller (1999) for it is the best fitted to structure the approach to the new paradigm of sustainability, and because

[11] Homeostasis – Auto regulatory property of a system or organism that allows keeping the equilibrium state of its main variables or its environment (Novo Aurélio – Séc. XXI, 1999).

[12] Adapted from "Technology for a sustainable future", National Science and Technology Council, USA (1994).

it represents a natural development of the science of marketing and does not constitute a disruption with the analytical models already established.

Sustainable Marketing is the process of [product] planning, implementation and development of price control, products/services promotion and distribution, in order to satisfy the following three criteria:

Table 6.4 - Criteria to be met by sustainable marketing

1. Meeting the needs of consumers;
2. Achieving the goals and objectives of the companies;
3. The processes developed and used are compatible with ecosystems.

Compatible systems of production and marketing with respect for the environment require the integration of strategies and policies for the management of waste from production processes and trade, for pollution prevention (P2) and resource recovery (R2). In this sense they face directly with the so-called "eco-costs" in the sense of their elimination or reduction, from a standpoint of marketing strategies developed by companies.

6.4.1 P2 and R2 goals

The P2 goals can be achieved through preventive measures introduced in the marketing strategies and policies: waste management and its production towards its reduction or elimination in the first place. In this way, it contributes decisively to the reduction of resources used, reducing the eco-costs, present and future and contributing to the achievement of goals R2.

The R2 objectives are essentially corrective actions arising from audits of sustainable marketing, identifying the need for reengineering of the product, packaging, or the

logistics of distribution (traditional or reverse) and all channels and other entities involved in distribution networks.

When a company is to launch a new product in accordance with the sustainable marketing framework, it's in the position to assess the potential pollution generated by product sourcing, production, distribution and consumption, and the resources consumed by the whole process. If the product is high natural resources consuming or very pollutant (for all stages or in a few), sustainable marketing provide the tools for management to strategically change product profile and steer pollution reducing or/and reduce resources consuming intensity.

Almost the same rationale can be applied to a product already in the market. Sustainable marketing framework provides the means to identify and develop corrective actions, in order to reduce the pollution generation and resource consuming intensity.

Under a stand point of sustainable marketing, goals P2 and R2 (as basic sustainable development strategies) imply production and trading operations development (or restructuration) in a way that do not compromise ecosystems. In consequence, from demand side of the markets, begins to emerge the term "sustainable consumption" (Willium and Goluke 1992; Charter, Peattie, Palonsky and Ottman, 2002), that also calls for a paradigm shift on decision-making processes and models of consumer behaviour, which are clearly outside the scope of this investigation.

Nevertheless, worthwhile to mention, even briefly, new sustainable marketing mission which, according to Sheth and Parvatiyar (1995), can be resumed as:

1) Redirect customer choices by shifting consumer attention from product benefits to product plus environmental benefits;

2) Reorienting marketing-mix by implementing the decisions which will materialize as environmental protection;

3) Reorganizing marketing channels, both supply side and demand side.

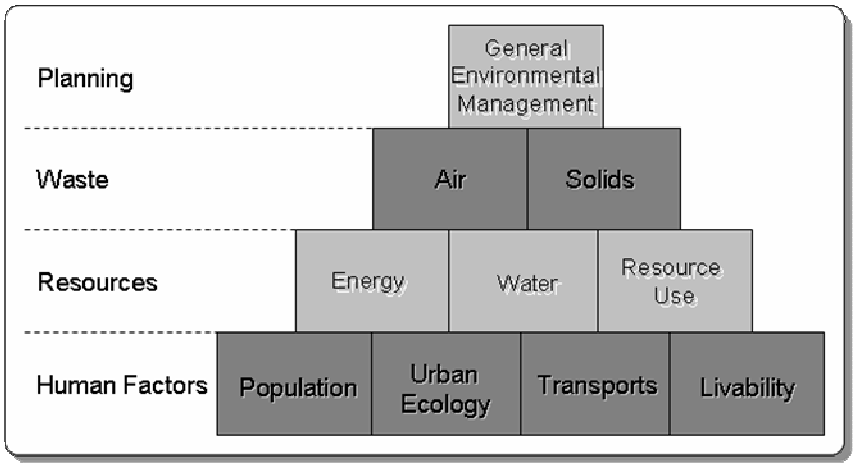
Only by aligning missions, goals, sustainable marketing planning and true commitment to ecosystem boundaries, is possible to effectively implement sustainable strategies and evolve for environmental stewardship companies.

6.4.2 Waste Management

In 1974, the Senator from Virginia, Jennings Randolph said before the Subcommittee on Environmental Pollution of the U.S. Senate: "The waste, involving more than what we call waste. The energy crisis (...) and the scarcity of raw materials make it urgent to develop a system of resource recovery. "(Ginter, Peter M. and Starling, Jack M., 1978).

Two decades after, EPA defined pollution prevention (P2) as the key strategy for achieving sustainable development (Fuller 1996, et al). Another decade has passed and a study by Yale University places the waste (solid and gaseous) management on top of the issues to be managed by the environmental planning and management system of the Vancouver county hall, like presented in following figure:

Figure 6.5 - Sustainable pyramid from Vancouver county hall



Source: Adapted from Shane, A. M. and Graedel, T. E. 2000, Yale University.

Pollution resulting from production and consumption of goods in terms of waste creates special constraints, not only for its own production (resources invested and associated

costs), and their collection and are in addition to the problem, increasing air pollution (transport) and subsequent treatment or disposal. Creating thereby greater impact on environment quality and making waste treatment appear on the first line of the management and control model that Shane and Graedel of Yale University applied to Vancouver[13] City.

The traditional waste management

The traditional waste management model is usually concentrated in the collection, treatment and disposal of such waste as much as possible (depending on the technical and financial resources available). However, this approach is primarily related to R2 goals. In other words, it gives no attention to the processes and decisions ahead of waste production. Now, sustainable marketing, above all, aims to prevent and avoid the ecological degradation under a P2 perspective.

The generation of waste, according to Fuller (1999), occurs when the consumer (private or business) does not give immediate economic value to the materials that remain after the satisfaction of their needs. Is the typical case of cans or plastic bottles, both used to transport and deliver a variety of liquid materials.

Waste generation also occurs as a consequence of industrial processes, whether in the form of gases released into the atmosphere, or in the form of effluent into water systems.

Waste processing can occur at source. This is right after the consumption and consists in the act of separation of "household waste" in the categories of organic, metal and plastic or paper and subsequent deposition in the ecological point of collection.

At the industrial level, waste processing can occur by separation of packaging materials of raw materials and other inputs used in the production process (such as cardboard, shrink

[13] Canadian city with little over 2 million inhabitants in 2000. Source: Vancouver Public Library, http://www.vpl.vancouver.bc.ca/research_guides/item/6726/C779, 27/11/2010.

plastic and pallets for storage) and subsequent delivery/collection by the public system *Ponto Verde*[14] in the Portuguese case. However, there are still many towns, cities and factory systems without waste classification and collection, which results in a larger environmental impact of the later stage of processing and disposal of such wastes (whether from domestic or from industrial and commercial sources).

The waste collection and transportation involves collecting and carrying waste from the source to processing plants such as *Valorsul*[15], to reduce its environmental impact before the deposition at landfills. On the other hand, it can also be processed for other industrial processes, such as the burning of toxic waste by cement industry.

The residues that are not processed at the source typically involve transferring to other entity specialists in processing certain categories of materials and equipment. It's the case of automobile tires and waste oil. These entities are specialists in the treatment of these materials or in the selection and collection of components for reconditioning for specific processing, or by its value or for its danger.

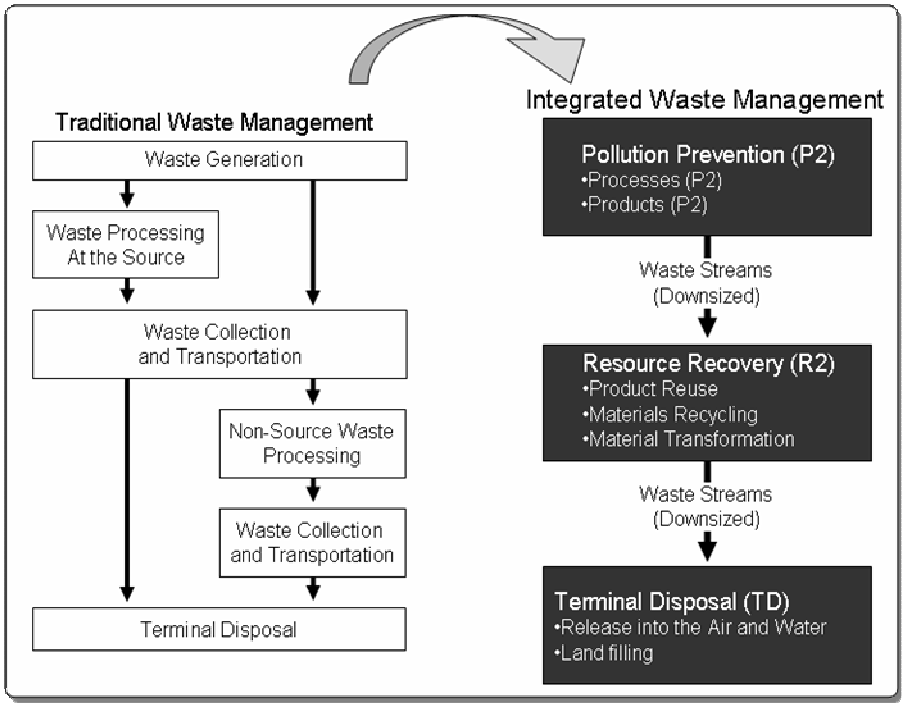
The final disposal of waste is the stage where the waste will not suffer any further processing, selection or additional recovery. It is normally the land filling prepared for the purpose, or the release into the atmosphere or the sea and estuaries, which are expected to have the lesser environmental impact.

The following figure shows those stages sequences and articulation, under the traditional perspective of waste management and recent evolution to integrated waste management approach:

[14] Sociedade Ponto Verde SA is a private society in association with Portuguese state, non-profit and was incorporated in November 1996. Its mission is to promote the collection, recovery and recycling of packaging waste at the national level. (http://www.pontoverde.pt, 18/07/2010).

[15] Valorsul, SA is the company responsible for processing and recovery of some 750 tons of municipal solid waste produced per year in the municipalities of Amadora, Lisbon, Loures, Odivelas and Vila Franca de Xira. (http://www.valorsul.pt/default.asp?SqlPage=content&CpContentId=15051, 09/08/2010).

Figure 6.6 - Traditional vs. Integrated waste management



Source: Adapted from Fuller, 1999.

Integrated waste management

According to Fuller (1999), the first priority of integrated waste management is the elimination or reduction of waste at source, as the P2 goals. It is therefore, a proactive strategy for resource conservation and elimination or reduction of waste production through a preventive approach (marketing strategy), like product design with environmental concerns, which is called Environmental Design[16].

The second priority of integrated waste management has to do with the R2 goals and involves the capture of energy, materials and components of waste streams for future use (Fuller, Allen and Glaser, 1996). That is to be used as resources for other processes.

The concept to retain is the close proximity between this hierarchy of integrated waste management following the P2 and R2 targets, with the design for environment, which trough planning and development, is to conduct from stage to stage to increasingly small waste streams.

[16] Also known as DFE – Design for environment.

Thus, the waste final disposal will have to deal with smaller quantities, less dangerous and therefore, allowing more effectively handling and processing. One can implement strategies derived from the goals R2, aiming to lower environmental impacts, contributing to the restoration of ecological systems.

6.5 Sustainable marketing strategic decisions

"Sustainable marketing is an extension of, not a radical departure from, traditional marketing management practice." (Fuller, 1999). This extension is achieved trough the addition of new strategic decision boundaries, new criteria to evaluate available alternatives and new strategies like P2 (Pollution Prevention) and R2 (Resource Recovery) which are to be understand "as logical responses to the need to develop production-consumption practices that preserve and enhance the ecosystems within which we live." (Fuller, 1999).

The following chapters present a detail discussion on this model extension, and the integration framework to evolve from traditional marketing management to sustainable marketing management.

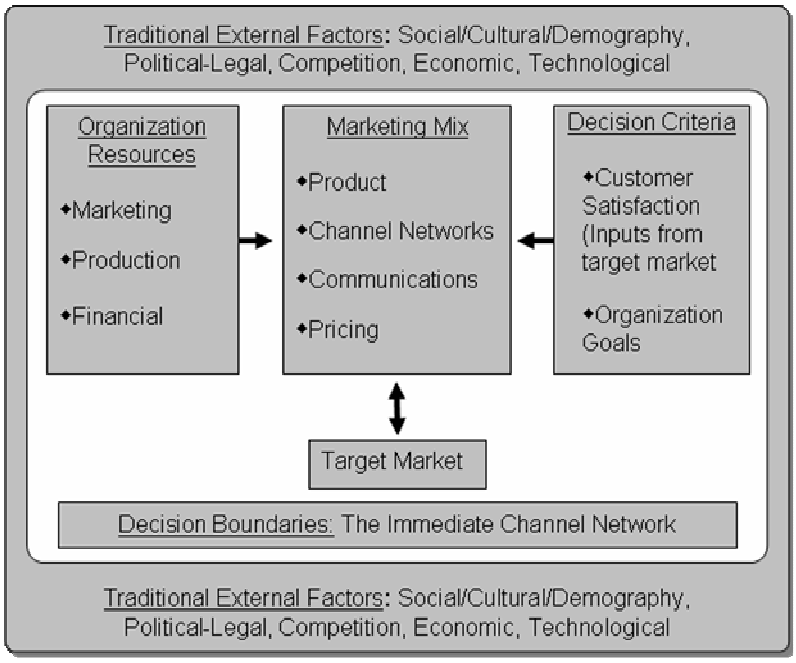
6.5.1 The traditional marketing management model

The development of models is a very useful tool to identify and analyze the interactions between the various component elements and limits, and to determine influences of the marketing process of decision making. The use of models, in this case for sustainable marketing (towards sustainable economic performance), is a powerful opportunity to create enduring value for multiple stakeholders, according to Epstein, Marc J. (Making Sustainability Work, 2008).

Both marketing (traditional and sustainable) processes approach problems in a similar way, through the management cycle (*planning, execution and control*). But the results are substantially different, especially when we consider the externalities and the decision criteria in line with a marketing strategy (Fuller, 1999).

For present research, a marketing model describes the necessary inputs, processes, outputs, constraints and outcomes to develop and implement a marketing strategy (Epstein, 2008). The following figure evidence the traditional marketing management decisions model:

Figure 6.7 - Traditional marketing management model



Source: Adapted from Boone and Kurtz1992; McCarthy and Perreault 1993 et al.

In the traditional marketing decision model, marketing managers manipulate: (1) the target market, (2) the company's resources, (3) the variables of the marketing mix, which they control, and (4) the external constraints (Boone and Kurtz 1992; McCarthy and Perreault 1993), like the economy performance, competition intensity, technology and legal and fiscal context. They do it within (5) decision criteria defined by (6) marketing

channels immediately available. Marketers decide on what to do and why (planning), decide how, who, where and when to do it (implementation) and finally monitor the progress of the actions implemented (control) and introduce corrective measures (when necessary) in order to achieve the company goals.

Macroeconomics factors draw the boundaries of marketing management activities outside the company. Market pressure demand in the context with culture and level of economic and consumerism, determines the opportunities marketing manager pursue in order to achieve business goals.

6.5.2 The sustainable marketing management model

In the sustainable marketing model, three new features emerge: (1) the ecosystems' integration into marketing management processes boundaries; (2) the introduction of a third criterion on marketing management decisions, in order to achieve ecosystems and environmental marketing management decisions compatibility; and finally (3) the introduction of the Product-System Life-Cycle (PSLC) concept, before facing the boundaries of marketing channels/distribution networks readily available.

The PSLC concept, which will be fully detailed in the next chapter, can be resumed as the product's waste and scrap generation cycle, from its production and distribution, to its consumption by the end-user.

The context of ecosystems is a border that should be respected as far as possible. The ecological footprint[17] of the strategy to implement can be evaluated by the fundamental equation: I = PAT[18]. The same applies to the compatibility with the ecosystem or

[17] Corresponds to the trail left by human activities of production and marketing in the environment and which can be seen by pollution, greenhouse gases, depletion of fisheries in the oceans, deforestation of the Amazon among many other examples (Mathis Wackernagel and William Rees, 1990).

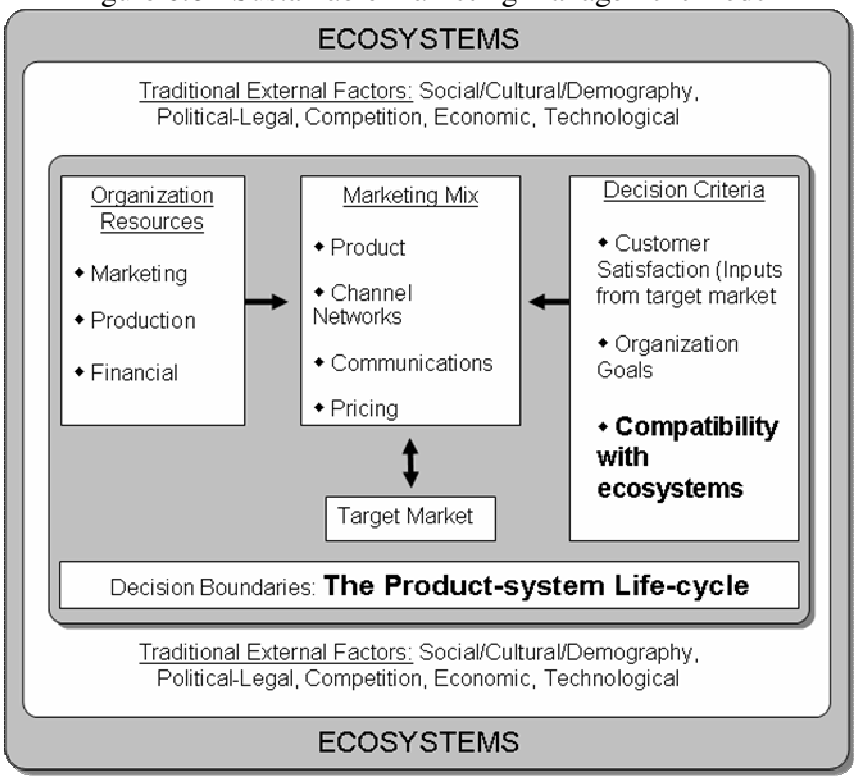
[18] In the early 1970 Ehrlich and Holdren conceived the equation by identifying the factors that generate environmental impact. Impact (I) is expressed in terms of resource depletion or accumulation of waste. P (population) refers to the human population size. Affluence (A) refers to the consumption

environment, as a criterion for deciding on the elements of the marketing mix to use and manipulate in order to produce value, both for end-customers and for the company, without harming ecological balance.

That new criterion and boundaries provide a whole new mind-set to consider available marketing strategies and operational decisions, on the array of marketing mix variables. It can determine the choice for certain distribution networks, or a different approach on communication and advertising campaigns, or even drive different options regarding packaging and warehousing.

The new approach of sustainable marketing management evidence those new boundaries for marketing decisions regarding environmental impact and waste generation management, as the following figures shows:

Figure 6.8 - Sustainable marketing management model



Source: Adapted from Fuller, Donald A. (1999)

level of the population calculated as GNP per capita. Technology (T) refers to processes used to obtain resources and transforming them into consumer goods and waste (Marian R. Chertow, School of Forestry and Environmental Studies, Journal of Industrial Ecology, Volume 4, Number 4, 2001).

The new frontier for a market access called PSLC (Product-System Life-Cycle) is based on the concept of integrated waste management (Fuller 1996), which will be detailed later. The PSLC context of analysis (framework) for the marketing-mix faces new criteria with double results. On one hand, the new approach to waste management (or the production process or the process of distribution and consumption under the perspective of waste generation) can be a source of:

1) Differentiation or cost reduction;

2) Competitive marketing or industry advantages (correlated with integrated waste management).

6.5.3 The Product-System Life-Cycle (PSLC)

The Product-System Life-Cycle was early proposed by Donald A Fuller, Jeff Allen and Mark Glaser in 1996 and brings together two major constructs concerning marketing management and waste management trough sustainable marketing decisions, which are resources life-cycle and marketing channels:

1) Resource life-cycle is the cradle-to-grave materials flow trough five nominal stages: (1) raw materials extraction, (2) material component manufacturing, (3) finished products manufacturing, (4) product's use/consumption and (5) waste disposal which, after all, is also present in precedent stages, as each one of them generates its own waste stream. The flows stages 1 to 4 consist of resources (or manufactured products) that are either consumed, incorporated or discharged as waste (Keoleian and Menerey, 1993).

2) Marketing channels are a network of organizations (or companies) positioned in such a manner that brings at reach the products demanded by end-customers markets in the store (place), at the moment (time), in the quantity (selling unit), and price preferred by consumers (Coughlan, Andersen, Stern and El-Ansary,

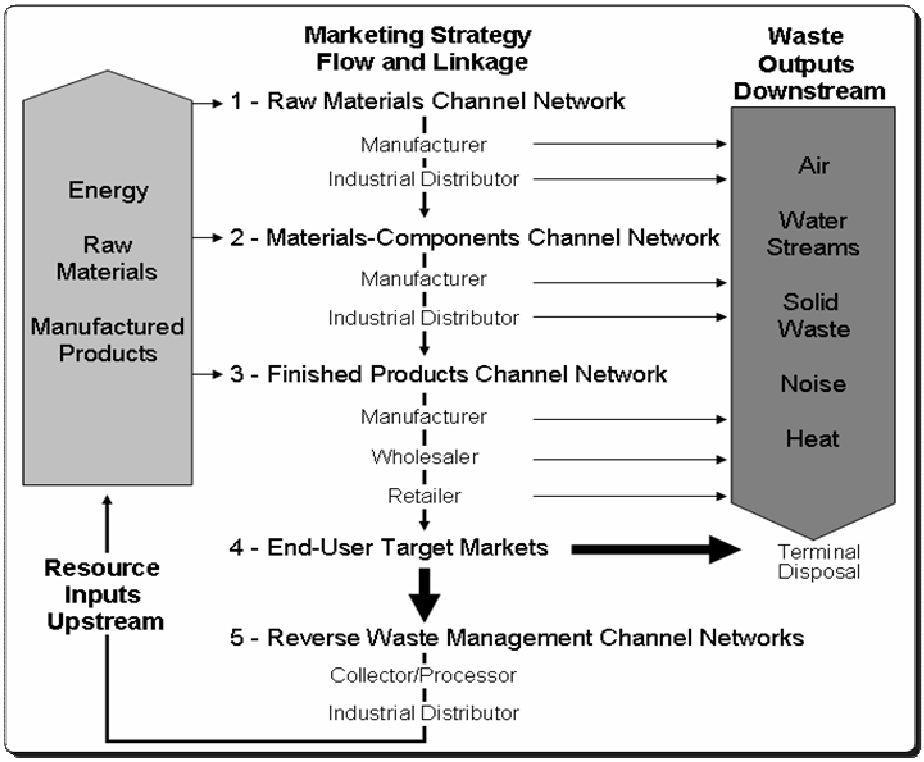
2001). Marketing channels network decisions are defined as the successive transactions from production until end-customer delivery for consumption, fulfilling business company's targets of doing so in a profitability manner, for all network's participants.

Marketing channels decisions regarding occurrences prior to initial product's processes stages or post-consumption are usually outside the scope of management (Fuller, 1999). A yoghourt marketing manager has no concern on what happens to milk-cows after reproducing age. Neither care for pollutant emissions from crude processing into yoghourt-cup polymer, nor (traditionally) care less for the yoghourt-cup terminal disposal after yoghourt consumption.

As Fuller (1999) well emphasises, above constructs taken separately lack to offer an integrated vision over resources' life-cycle and business companies objectives. The PSLC framework represents a merger of the two concepts that captures the comprehensive, cradle-to-grave coverage necessary to assess ecological problems while factoring the [critical] element of business purpose.

The PSLC consists of five stages and its interdependent flows of resources as raw materials, energy and other inputs needed for production, distribution and consumption of goods and the flow of waste generated in those processes.

Figure 6.9 - Product-system Life-cycle



Source: Adapted from Fuller, Donald A, Jeff Allen and Mark Glaser, 1996.

The stages 1 to 3 correspond to the flows of raw materials, energy and other materials needed for production, processing and marketing of goods to target end-markets of consumers/users. The purpose of the system, the consumption of goods by consumers and industry as end users, corresponds to the stage 4. Stage 5 concerns the integrated waste management of the whole process of production, distribution and consumption. Depending on the implementation of strategies for selection of waste, lead waste stranded for the most appropriate solutions to the homeostasis of ecological systems. Through strategies of recovery of waste back to integrate them into the production process as resources of a similar kind or as energy or subsidiary materials, complementary to the respective production processes, as is the case of cartons, bottles of glass or PET (polyethylene terephthalate)[19].

[19] Polyethylene terephthalate is a thermoplastic polymer resin of the polyester family and is used in synthetic fibres; beverage, food and other liquid containers; thermoforming applications; and engineering resins often in combination with glass fibre.

The PSLC provides a perfect insight under a marketing management perspective, on first and second Commoner's law (1971)[20] which states respectively that everything is connected with everything else and everything must go somewhere.

The central implications are that each stage of PSLC is supportive of the next stage, and are interdependent of each other, and the decisions made in one stage have a direct repercussion in following stages (Fuller, et al, 1996). PSLC model can be summarized in the form of three main streams, like detailed in the following table:

Table 6.5 - PSLC stream flows

1.	Midstream flow consists of main product's marketing strategy that determines the characteristics of products and production, forms and packaging for the marketing of consumption goods by end-users and ultimately determines the volume and quality of consumption waste generation. Participants of this flow master subsequent marketing decisions with real impact on the overall waste generation chain originated by customer market needs satisfaction. Proper PSLC product's profile can facilitate and ensure the company's achievement of P2 and R2 goals, since it can determine the product DFE, allow deeper insight and interpretation of end-customers needs and behaviour and projects environment friendly distribution channels systems.
2.	Downstream flow of waste generated over the distribution networks, which play a key role in the process of waste production and management. Decisions within the context of this flow may well determine lesser pollutant emissions, resources consumption or components assembled, translating into more value for company objectives attaining and can be a source of important marketing

[20] Ecologist Barry Commoner wrote The Closing Circle. Commoner summarized the basics of ecology into what he termed "laws of ecology" (1) Everything is connected to everything else; (2) Everything has to go somewhere or there is no such place as away; (3) Everything is always changing; (4) There is no such thing as a free lunch, (5) Everything has limits.

differentiation advantages.

3. Upstream flow of reverse distribution networks and waste management ensures their return to productive processes/processing, but now as resources. Either to be recycled into a new resource-cycle or to be consumed as raw material, by-materials or under the form of energy. In many cases reverse channels can become a profit centre for the company, since it ensures transport returns occupied, or by selling to other companies, what under product's own perspective is a scrap but can be a raw material or energy source for other product processes.

According to Fuller (1999) the PSLC model can be considered as the first step for sustainable marketing strategy implementation, to delineate a product's PSLC from which will come an understanding of waste burdens generated by interrelated decisions of midstream, downstream and upstream sector participants. Although no individual organization or end-customer can be held as responsible for waste production from other system participants, clearly the totality of system's waste must be understood [and assessed] if it is to be moderated trough coordinated sustainable marketing efforts.

From PSLC follows the Life Cycle Analysis (LCA) which is defined by EPA as a technique to assess the environmental aspects and potential impacts associated with a product, process, or service, by:

1) Compiling an inventory of relevant energy and material inputs and environmental releases;

2) Evaluating the potential environmental impacts associated with identified inputs and releases;

3) Interpreting the results to help you make a more informed decision.

According t Fuller (1999) LCA "attempts to add flesh, bones and sinew to the bare bones of PSLC framework." Is a deep accounting, understanding and measuring process

of all waste streams and resources used for a certain product process, resulting on comprehensive profiling and evaluating of ecological burden.

While LCA tracks very close the product's environmental performance and impact, it lacks the global perspective of multistage consumption or waste generation. Then, far from replacing or being an alternative framework to PSLC, LCA is a necessary complementary one.

Since the scope of present work lies within preliminary and qualitative research, LCA will not be further detailed. However, it must be used ahead, if one endeavours to develop a full sustainable marketing plan.

6.6 Sustainable marketing strategies

As discussed earlier sustainable marketing is an evolution of traditional marketing management to respond to the new challenges that business and mankind are facing in relation to ecosystems unbalance and resource depletion due to production-consumption models that we have been using.

The strategies available under the sustainable marketing model are also extensions of the previous model, expanded now, by the P2 (Pollution Prevention) and R2 (Resource Recovery) new basic goals. Which result in four sets of product strategies:

1) Product dematerialization;
2) Environmental design concerns;
3) Proactive sustainability;
4) Sustainable growth.

These sets of available sustainable strategies are discussed in detail in following chapters.

6.6.1 Reconsidering the products in the form of services

Dematerialization is a result that occurs when fewer resources (raw materials, the subsidiary and/or energy) are consumed to produce the same benefits (or equivalent) to consumers, thereby reducing the impact of the marketing process in the environment (Fuller 1999). P2 and R2 basic strategies of sustainable marketing, contribute directly to this result by reducing the resources required and waste/scrap generated in the production process for a given level of output.

Another form of dematerialization has to do with the packaging materials. Reengineering the packaging together with new types of logistics (storage and distribution), can bring very significant reductions in costs and waste. This is a sustainable marketing strategy, with an optimized PSLC perspective, of integrated waste management.

Nevertheless, according to Kotler and Keller (2005) customers seek to maximize its value, within the limits imposed by the costs. The value to customers/consumers is the difference between the evaluation that customers make of all the benefits, and the cost (consumption) of a product or service. Then consumers look essentially for the benefits of products and not the actual product for itself (Fuller 1999). In this sense, it opens a wide world of creativity in which companies can spend the focus of its manufacturing and marketing operations to contracted services over time, as is the case of companies like "Automobile Leasing" whose clients do not get the ownership of the car, but the benefits of its use, depending on the mileage contracted.

6.6.2 Design for Environment (DFE)

According to Graedel and Allenby (1995) the term design for the environment (DFE) was born within industrial product design to describe the attributes or components that are positive for the environment. However, company decisions on marketing-mix variables are reflected directly in the production of waste under managed constraints arising from

P2 strategies, or facilitating the role of recycling, according to R2 goals. Then all areas of intervention of marketer's management decisions must be guided by the principle of design for the environment.

Product

The product concept and design directly determines the resources and processes to be used. These are the factors determining the size, characteristics and value of the PSLC waste streams (Fuller, 1999).

According to Devashish Pujari and Gilian Wright[21], to effectively achieve DFE companies should perform a pre-design research to ensure meeting all new product's environmental requirements and guarantee successful new DFE product marketing.

The pre-design research consists in:

1. Initial screening to learn and evaluate environmental needs by end-consumers and ecological stakeholders;

2. Preliminary market assessment for market size appraisal, segments, estimate market growth rates and to gain competition insight;

3. Market research to understand customer's needs and wants in relation to environmental value and how purchase behaviour was altered regarding the new needs;

4. Environmental and business analysis to determine environmental company resources and R&D capabilities and the needs to obtain new resources or competencies, both internal or through partnerships and to estimate new product's ecological impacts (resource use and pollutant production intensity);

5. Financial analysis to budget investments and expected returns, funding needs and investment planning;

[21] In Charter, Martin and Polonsky, Michael J. (1999), Greener Marketing: A global perspective on greening marketing practice, Greenleaf Publishing Limited, Shefield, UK, pg. 114.

6. Concept definition where final product's DFE requisites are defined such as environmental performance, new product's benefits, ways of terminal disposal, packaging and distribution requisites.

Pricing process

This is not an intrinsically waste generator process. It, nevertheless, should be a reflection and an expression of proposed environmental value embedded supporting development of the product's sustainable marketing strategy and respective marketing mix. It must therefore internalize the eco-costs resulting from the optimization of PSLC relative to the midstream, waste downstream and recycling upstream.

Distribution Networks

Determine the composition, intensity of market coverage and functional capabilities of the networks that are necessary to link product with target markets (Fuller, 1999). They are the main agent of waste packing production, as well as air pollution and fuel consumption, drive the need and the physical distribution of products, and also hold a high proportion of PSLC.

Promotion

Not being the biggest area of waste production, communication campaigns and promotional events and demonstrations must be specially designed and evaluated for waste generation minimizing. Many times is a function very constrained by prior marketing decisions. So, it must be considered with equal importance when defining the marketing variables mix. Then it can fully play its role of communicating clear and effectively to end-customer markets product's concept, central benefits and environmental performance or low impact.

6.6.3 Proactive strategies for sustainable marketing

Taking into consideration basic P2 and R2 goals it is possible to draw two major sets of sustainable marketing strategies. The first set deals with P2 range of pollution prevention possible strategies. The second set covers R2 range of available resource recovery options to operationalize true sustainable marketing plans.

P2 - Pollution Prevention

According to USA's federal environmental protection agency (EPA), pollution prevention (P2) is reducing or eliminating waste at the source by modifying production processes, promoting the use of non-toxic or less-toxic substances, implementing conservation techniques, and re-using materials rather than putting them into the waste stream.[22].

P2 strategy is the main contribution to the effectiveness of a product's strategic sustainable marketing plan. Its impact at all levels of the PSLC, and the decisions of the marketing mix, define the scope of critical targets associated with it. The P2 strategy and targets are unquestionably medium to long term and are more effective the sooner they are considered in the process of marketing planning. This strategy applies mainly to products and production processes.

P2 - Products

The products are the result of production processes and are moved along the distribution networks, but unlike the processes that generate waste and rubbish, products will themselves be a waste in the future, either by its consumption, either in terms of waste packing as either old or even by the termination of its functionality or benefits.

[22] EPA – Environmental Protection Agency http://www.epa.gov/p2/, 17/03/2011.

Thus P2 goals related to products are about designing products that minimize waste generation over the production and distribution flow to its consumption by the end-customers.

So this strategy focuses on: (1) selection of materials and product components; (2) amount of material (and resources) used in its production and packaging; (3) implications of those choices for their use, durability and deposition after losing its usefulness - i.e. increasing its useful life; (4) minimization of waste/rubbish resulting from the use/consumption; and (5) the potential to change the way the consumer obtains utility/benefits in their consumption to be more compatible with the ecosystems and reduce the environmental impact.

P2 - Production and distribution processes

The activities involved in the production of goods and materials and their movement through the distribution system are ultimately a set of transformation processes on the resources (or raw materials) and connected with a marketing purpose which embodies time, place and benefits for its possession or transaction (Fuller 1999). The design flow of PSLC clearly shows this chain of processes of resource consumption, production, trade and the consequent generation of waste/rubbish.

So P2 goals can be met when production processes and distribution take place in the reengineering of production systems and distribution operations, to reduce the resources consumed and waste generated in the production process, logistics (Inbound and outbound) and along the distribution networks until the end-customer satisfies their needs.

R2 - Resource Recovery

The second priority resulting from the integrated waste management approach in sustainable marketing is the recovery of waste. Because current technology cannot

achieve the level of "zero waste in production", those can be minimized but not entirely preventable. They should therefore be addressed in the context of sustainable marketing because: (1) all products sooner or later will reach the end of its useful life; (2) will always be necessary packing materials and transport - albeit small ones; (3) the very laws of physics (underlying processes) require that the transformations the raw materials are subject to will always generate some sort of waste.

The R2 strategy can therefore be described as the process through which products, materials (resources) and energy are routinely recaptured in waste streams and reinstated again in the cycle of production, distribution and consumption. This process is implemented by distribution reverse channels as evidenced by the upstream flow of PSLC framework. So R2 strategy can be achieved through the reuse of products, materials recycling and processing of materials.

R2 - Reuse of products

The many possible approaches of this strategy are always based on the type of product concerned and its ability to be modified or refurbished to be re-marketed and consumed/used. This approach is distinct from the strategy P2 – Product, due to being considered as product life-cycle extension. Here is considered a succession of consumption cycles with equivalent or equal benefits. Its achievement is evident in the "triple R": Reconstruction, Reconditioning and Repair. Most common (and not a novelty from sustainable paradigm) example for R2 goal enforcement is reusable bottles of beer or wine, fallen into oblivion on last decades of the twentieth century. In this case, a prize value was attributed to end-customer when the bottle was returned to marketing channel, performing a reverse flow from stores to production plant, for washing and refilling. It stands for a perfect example of PSLC model, with a correct pricing process which

assigned a price to the empty bottle to stimulate the end-customer to proactively return it to the stream, what otherwise would be a waste for terminal disposal.

R2 - Recycling Materials

The recycling of materials through the capture of large quantities of products and materials from the waste stream of PSLC, which are then subject to reduction and physical changes that make them return to the stage of raw (or subsidiary/components) materials, completely free from the product's characteristics and benefits or the physical forms which was originally built. After recycling, these materials became resources and compete directly with the raw materials at first use, either in quality or in value, thus creating alternative resource material sources for industrial production, since it could be guaranteed:

1) Continuous flow of supply;
2) Use of stable distribution channels with reverse logistics (stage 5 of PSLC);
3) Recycled material market development and maintenance.

R2 -Waste material processing

Transformation of raw materials involves waste processing through thermal processes (incineration and/or combustion), chemical or biological agents who transform the original materials in alternative or even new materials.

6.6.4 Sustainable marketing growth strategies

The natural and physical environment, traditionally discussed as an external influence on the process and content of managerial decision making, is now viewed (as already discussed) as central to marketing and management (Ajay Menon and Anil Menon, 1976).

However, business companies' goals still remain to be the increase of sales and value. Although they have at present a wider scope of targets to run to like "green image", CSR, respect for ecological balance and sustainable growth.

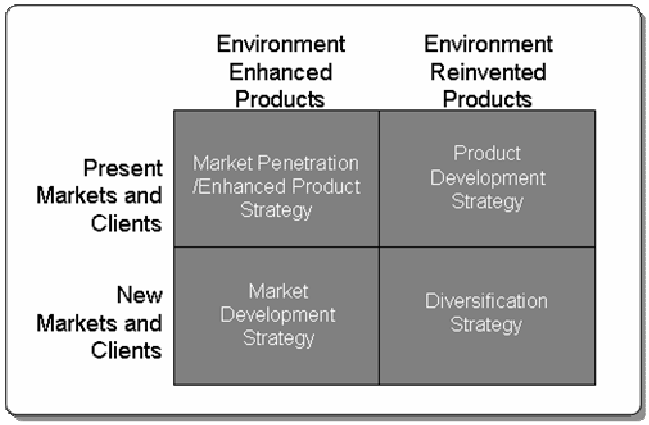
However, some discussion and doubts about the causal relationship between sustainable strategies and better corporate performance still arise (Menon and Menon, 1997, Dias Sardinha and Reijnders, 2005). More recent research cast a whole renewed interest on the subject. As worldwide companies like Dupont, 3M and Electrolux (early adopters of environmental criteria for strategic development) keep on track regarding environmental and sustainability issues, and grow more involved and committed, because they consider that ecological and social responsibility is rewarding.

According to several authors there is already robust enough evidence about social and ecological responsibility as performance drivers, responsible for cost reduction, higher value delivered to end-customers, shareholders and stakeholders in general (Auperle, Carrol and Hatfield ,1985; Pullman, Maloni and Carter, 2009).

Companies that adopt a marketing strategy for sustainable development and growth under the new paradigm of social responsibility and ecological compatibility, have two high-level strategies for its development towards sustainability: (a) environmentally improved products and (b) environmental reinvented products, each one subdivided into two sets, depending on the target end-market. (i) Penetration when the target is the same where product/company has already operated or (ii) development when product/company aims to enter new end-markets (or segments). It corresponds to environmental enhancement and constructs expansion of the classic Ansoff's product/market matrix[23].

[23] Igor Ansoff, "Strategies for diversification", Harvard Business Review, Sep./Oct. 1957, pg. 114.

Figure 6.10 - Strategic matrix of environmentally enhanced and reinvented products



Source: Adapted from Ansoff (1957) and Fuller (1999)

Strategies for environmentally enhanced products

The entry strategies and market development for environmentally improved products require minor changes or adjustments in products, production processes and distribution networks, in terms of compatibility with the ecosystem (new decision criterion of the marketing-mix decision model for sustainable marketing).

Those two strategies (1-market penetration/product enhancement and 2-market development) involve modest changes in products and processes that focus on improving the performance of the product as it stands in PSLC. Based on the current used technology, the central features of the product and its benefits for the end-customer, should remain essentially the same, but with an improved environmental performance, regarding production processes, distribution or terminal disposal (or perhaps returning to PSLC's waste/raw materials upstream). So this development strategy is based mainly on R2 actions with a short-term horizon.

Strategies for environmentally reinvented products

In contrast to the strategies of improved products, those relating to the environmentally reinvented product's column have their origin in reinventing the concept of a product with

stronger compatibility with the environment, better distribution channels performance as proposed by the PSLC and the active contribution for the balance of ecosystems.

In terms of product development, these strategies involve a radical change in how products deliver value and benefits of their consumption to end-customers to accommodate their ecological attributes. These are strategies with a time horizon of medium and long term, which inherently lead to exposure of the company to greater risks related to innovation.

7 SUSTAINABLE MARKETING AUDIT

Detailed analysis of the strategies available for management and sustainable marketing decision enforcement are not part of this research project. As an exploratory research in a discipline as recent as sustainable marketing, it focuses instead in a practice sufficiently grounded in theory and previous work, contributing to a more rapid introduction of this new approach in the current management plans and marketing strategies, which may at once incorporate the benefits of the new paradigm.

7.1 Sustainability as a source of competitive advantage

The implementation of sustainable marketing in accordance with the new paradigm of social responsibility and environmental responsibility may in itself be a source of competitive advantage (sustainable) in the medium and long term (Banerjee, Bobby S., Peattie, Ken, 1999)[24].

These advantages derive directly from the possibility of reducing costs through the implementation of strategies P2 and R2 in the view of the PSLC.

[24] In "Greener Marketing: A global perspective on greening marketing practice." 1999. Edited by Charter, Martin and Polonsky, Michael J. Greenleaf Publishing Limited, Shefield, UK.

Apart from these, the repositioning environment of company's products can lead to product differentiation and to conquer additional market shares (Earle, 1993).

According to Porter (1991), reducing consumption of raw materials, the emergence of growing market segments for products with environmental features and compatible with the environment and the new cleaner technologies, can be a source of competitive advantage.

7.2 Environmental product positioning assessment

Before the establishment of any marketing plan development, one must make the diagnosis of the starting point. That is, evaluate more thoroughly and accurately as possible where we are, thus one can define the objectives and goals to achieve and the way to go and the necessary investments to be made to support that strategy.

The aim of this research is to develop a sustainable marketing audit of a product-specific, in order to find the product’s position regarding ecological burden. The comprehensive diagnosis can become the starting point for the future strategic sustainable marketing planning and implementing.

According to Kotler and Keller (2005) the marketing audit is a comprehensive, systematic, independent and periodic review of environmental objectives, strategies and marketing activities of a company or business unit, to determine problems and opportunities and to recommend an action plan to improve the performance of marketing.

The sustainable marketing audit pursues the same objectives but in terms of environmental responsibility (compliance with the goals P2 and R2), improvement on the PSLC and integrated waste management, restricted to a specific product. The marketing audit focuses on sustainability, and so the characterization and evaluation (qualitative) of the company's marketing strategies ecological impact for a product-specific (Fuller 1999).

The sustainable marketing audit is then subject to the following questions:

Table 7.1 - Sustainable marketing audit questions

• What are the waste streams associated with the product in the production process and distribution process?
• What wastes are produced in the use / consumption of the product and at the end of its useful life?
• What is the standard / typical method of deposition of the product?
• Are there environmentally compatible processes, materials and raw materials or other improvements associated with the product that can be used in the current context of the production process and technology?
• How to characterize the company's suppliers on the environmental responsibility? How can you support providers to abandon the use of products/resources toxic or hazardous?
• How do customers see the product, environmental friend or foe?

With this audit of sustainable marketing to a product-specific to be concretized in the diagnosis of the current strategy of Delta Q, one is in possession of the basic product positioning against goals P2 and R2.

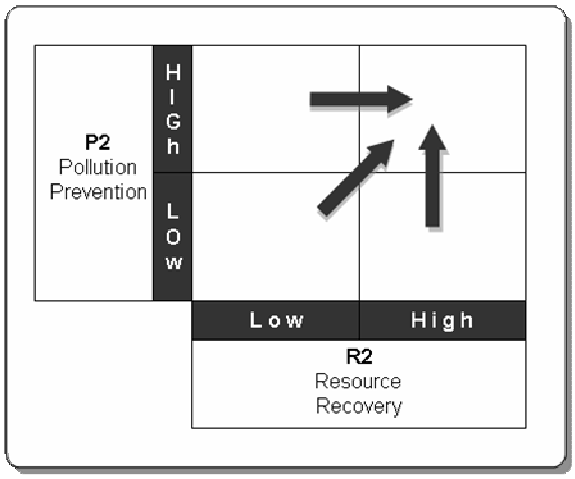
7.3 Product positioning in relation to P2 and R2

At the end of the sustainable marketing audit process, should be a diagnosis with a solid foundation for developing and proposing a marketing strategy based on sustainable principles like pollution prevention (P2) and resource recovery (R2), and thus develop truly sustainable actions to assure product's ecological impact reducing.

The comprehensive understanding of the product's standing point regarding sustainable marketing goals is critical, not only to assess product's commitment to environmental sustainability and ecological responsibility, but moreover, to define the set of sustainable marketing strategies available.

Depending on product's positioning against P2 and R2 goals, a whole set of different sustainable marketing strategies arise, as presented in following figures, representing the desirable product's perfect positioning and the path to be made to achieve the improvement level goal:

Figure 7.1 - P2 and R2 goals for product positioning



If a product is low positioned against P2, the marketing manager has to evaluate and launch actions under dematerialization or DFE range of strategies, as previously discussed, if suitable. Alternatively, if the product is already developed (or even being marketed), product's marketing manager can start a deep re-evaluation of the product according to the sustainable marketing proactive strategies discussed above.

On the other hand, if the product's positioning is low against R2 goals, the marketing manager should evaluate a different range of available sustainable marketing strategies, like the reuse of materials, material recycling, and above all, the integrated waste

management, according to product's position in the PSLC (Product-system Life-cycle), as already discussed above.

The design of the strategic marketing planning and implementation seeks to replicate the ecological systems in homeostasis. The company's production and marketing processes have the unique property of providing the reproduction of those initiatives for a wide range of stakeholders, or by a wide audience like suppliers, distribution channel partners or common public in general. We are, therefore, in a context of effective action at the local level, with potential impact at the global level, which can and must diminish whole industry carbon footprint.

8 DELTA CAFÉS

The choice on Delta Cafés was made mainly because it is the leading Portuguese company in coffee industry. This choice was also motivated by the company's decision to enter, consciously, the market segment of capsulated coffee, where the giant Nestlé holds the leadership. Delta Cafés entered in this market segment with Delta Q brand, which is the focus of the present research.

Delta Q is essentially a pure marketing management product, born from the intrinsic development of day-to-day marketing management principles, in this case, the ones regarding to customer listening and needs satisfaction. In fact, soon after Nestlé strong launch of Nespresso concept in the Portuguese market, Delta Cafés started to receive increasingly pressure demand from end-customers and professional customers asking why there was no Delta Cafés product in the market segment of capsulated coffee?

This demand pressure was made visible trough hundreds of e-mails and letters sent to the company and continuous questioning to the sales representatives by the professional market and distribution networks. In a very clever and bold move, Delta Cafés management found the right market opportunity and motivation to enter a new market segment with a new product/brand and expanding company’s revenue streams.

8.1 Overview

DELTA Cafés is celebrating in 2011 its fiftieth anniversary and is one of the leading representatives of the so-called Portuguese quality products and is also a special presence in the industry and in the business landscape, due to its brand recognition, value and trust from de end-market and its sustainable and organic growth. The coffee brand DELTA was considered by the consumers a trusted brand for the last nine years.

DELTA operates in the coffee industry under a vertical business integration approach. The company acts on three main markets associated to coffee:

2) DELTA sources green coffee directly on the producer markets and respective farmers all over the world.

3) DELTA imports green coffee for Portugal, being responsible for half of the Portuguese coffee imports, for plant processing and packaging.

4) DELTA promotes, sells and distributes ready to consume coffee for several end-user and professional markets. More recently entered the niche of the encapsulated coffee rivaling directly with the giant NESPRESSO (Nestlé Group) and eventually could be added a new fourth dimension of vertical business integration, regarding reverse logistics of coffee consumption waste management, which will be furthermore detailed, later, once it is the core of this case study.

Undoubtedly, this is the result of the charisma of its founder in addition to a recognized product quality, which allows a single market share of 48% facing more than a two dozen other national and international competitors brands in the Portuguese market. Thus the company leads the Portuguese toasted coffee market. In Spain, the company achieved a market share of little over 5%, which assure the seventh place in the Spanish toasted coffee ranking, just after three years of direct establishment in the market.

The profile consumption for coffee breaks into 72% for immediate consumption in coffee-shops, restaurants and similar, and 23% for domestic consumption, according to latest market reports cited by current CEO of the company Rui Miguel Nabeiro grand-son of the founder of DELTA Cafés (Marketeer magazine, June 2009).

Commendation holder Rui Nabeiro portraits a special entrepreneurship character and personnel business vision that determined the launch of DELTA in a small village called *Campo Maior* on the Portuguese country side of *Alentejo* (beyond Tagus river), near the

Spanish border, away from all the main end-markets, still today. Nevertheless, closer to the green coffee import markets, and now, fifty years after, strategically positioned to launch its successful internationalization process, towards continental European markets.

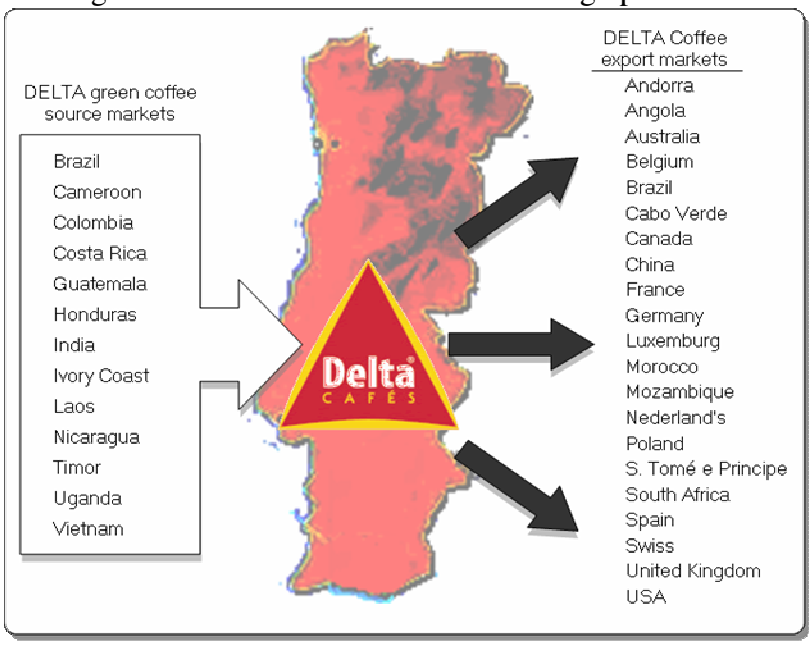
Today DELTA SGPS manages more than ten business companies in three continents, and almost countless small other firms, ranging from store design, logistics and computing to a professional training school and a children day care centre.

The company employs directly 1.746 persons according to 2009 DELTA's annual accounting report, that are responsible for a global gross wage mass of 50,8 million Euro.

Almost one third of all goods and subsidiary materials used for coffee processing, and packaging is domestic sourced, which accounts for annual internal buying over 83 million Euro.

DELTA group is present directly in *Portugal*, *Spain*, *France*, *Angola*, *Mozambique* and *Brazil*, and keeps trading operations with more than thirty countries around the world, making DELTA, perhaps, one of the most globalised Portuguese companies. Following is showed Delta inbound and outbound international flows from imports and exports respectively:

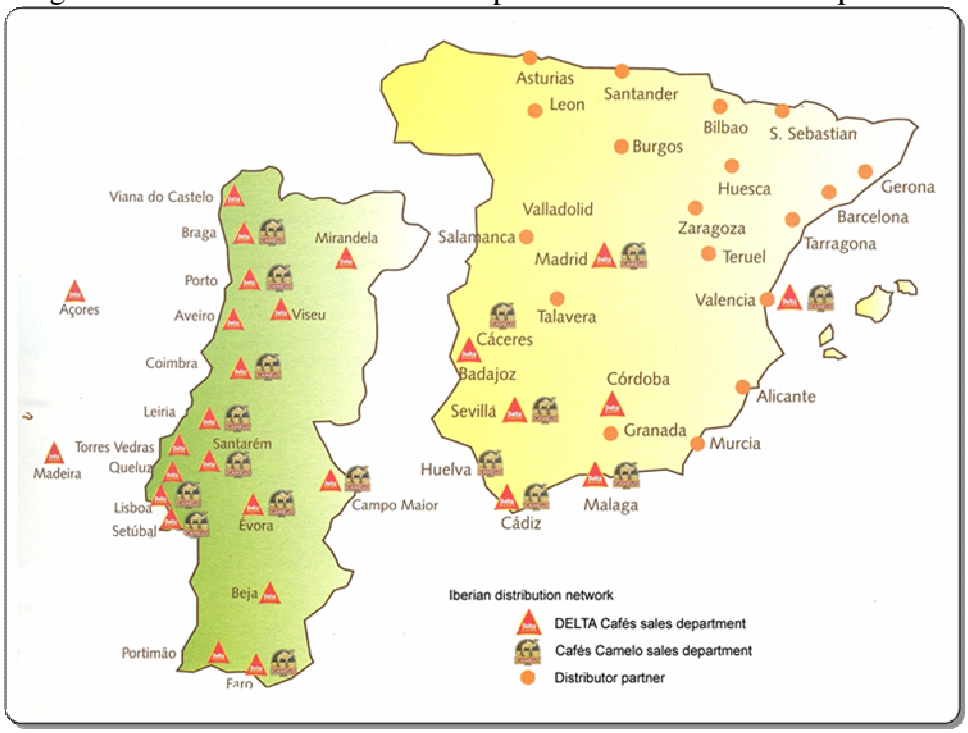
Figure 8.1 - DELTA international trading operations



Source: Adapted from DELTA Annual accounting reports

Iberian operations are structured around 34 own sales departments and 26 partner distributor companies. This distribution network assures a coverage rate of 98% in Portugal and over 75% in Spain, and assures effective promotion and sales trough several end-markets like: Restaurants, Companies, Modern distribution (wholesalers and retailers), Vending machines, on-line and Brand-owned stores in Lisbon and Oporto. The following figure shows Delta's Iberian marketing structure and geographical widespread trough Portugal and Spain, as direct own marketing departments:

Figure 8.2 - DELTA Iberian sales departments and distribution partners

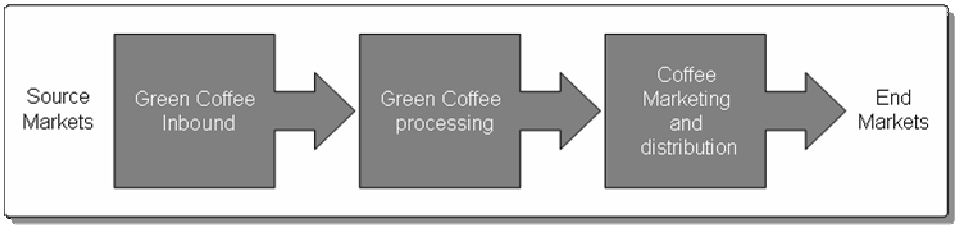


Source: Adapted from DELTA 2007 Sustainability Report

To assure all the necessary logistics regarding the producing, marketing and distribution the company manages a fleet of 37 Lorries and 662 light vehicles.

The business model associated to the coffee industry as implemented by DELTA is arranged under three main strategic building block operations:

Figure 8.3 - Traditional building blocks of business model



Green coffee inbound

Since there aren't coffee planting and production in Portugal, all raw coffee must be imported, and the company bought from foreign producer markets in 2009, around 185,7 million euro of coffee (2009 DELTA's annual accounting report), which accounts for 50% of Portuguese coffee buying in the international markets. This means over exposure to the volatility of exchange rates, financial markets and national economies performance and assessment by the market makers.

Furthermore, it becomes of strategic importance due to the determinant impact on the final quality of the toasted coffee produced and marketed. From different production markets are obtained coffees with distinctive textures, aromas and (off course) tastes, which, through the first building block of the DELTA's business model, assumes seminal importance to the final product quality and company market success.

Based on these distinctive characteristics of green coffee from several continents and climates, DELTA blends different aromas and textures to produce some of the best Espresso coffee in the world.

Green coffee processing

In this building block of the business model, green coffee goes trough three main processing stages and corresponds to the industrial step of the model. First the coffee grains are toasted. Second they are subject to milling. In addition, in the third stage the

several lots are mixed to create the different blends to pack and store for further distribution.

Prior to the first stage of toasting, but quite close and critical, is the reception of the green coffee, where is it immediately subject to sensorial inspection and characteristics allocation by origin, grain weight, dimensions and humidity.

Then grain samples are collected from the lots to further fine testing in the laboratory, which establishes, confirms and controls the lots origin and full characteristics, to determine exactly, the blend proportions needed to produce all the brands and lots marketed by DELTA.

Furthermore, at this stage sample toasting is performed to determine the levels of ashes produced, loss of humidity, liquid extract produced, caffeine level and finally to assess the taste of the finished coffee.

At the first stage, the grain coffee is toasted in three phases:

1) Evaporation by heating is the longest phase;
2) Drying the grains and aroma producing, as well as the brown colour that also occurs in this phase, is the most energy consumption phase reaching 150^0 Celsius degrees;
3) Most important chemical transformation occurs, and humidity loss is maxim.

At the second stage coffee is milled. The milling process is also a critical one, once the milling is too thick and water stays too long with the coffee, which produces a coffee with kind of a bitter taste. Adequate milling gives coffee the proper taste and creamy look.

Finally, at the third stage, milled coffee is packed. DELTA processes two kinds of packaging:

1) The vacuum pack, where all the air is sucked out of the pack, inhibiting the oxidation of the coffee and hence the loss of aroma, taste and quality;

2) The modified atmosphere, which consists in the injection of an inert gas in the pack replacing oxygen to avoid, also, the coffee oxidation process.

Coffee marketing and distribution

The strategic importance of this block derives from the extreme exposure the product acquires from this moment on. The finished packs of the different blend and presentations start to be communicated and promoted trough the sales teams. Direct contact with costumers enhances the sales, but is also a source of conflicts and the first input to after-sales process.

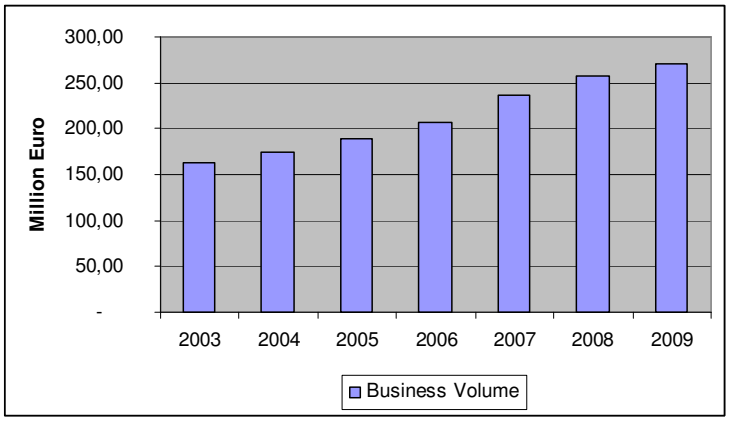
The stock keeping packs start to be distributed for the several widespread sales departments, wholesalers, professional channels and retail stores.

8.2 Accounting and financial data

Following is presented a quick overview of main figures of DELTA, intended to gain a comprehensive picture of business evolution and dimension over the past seven financial years.

The company has been facing a steady growth of business volume. Indeed DELTA evidences one of the best performances of recent years in Portuguese economic landscape. Starting 2003 to 2009 business volume increased 66%, which corresponds to an amazing 11% annual average growth. Special note for 2007 where the company achieved almost 14,50% growth of business volume over 2006, as shown in the following figure:

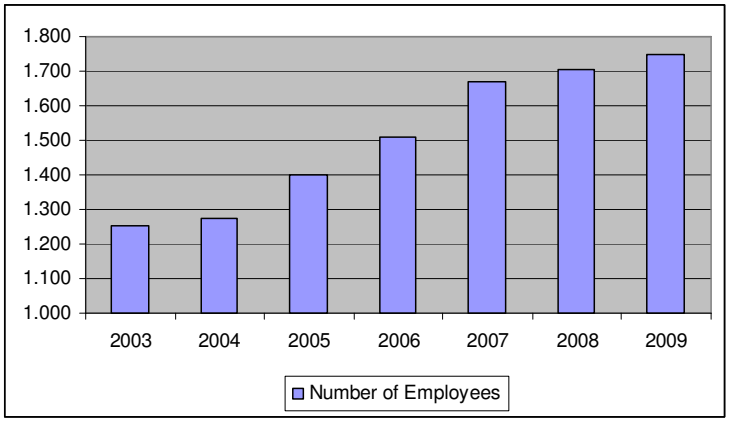
Figure 8.4 - Evolution of business volume (Current prices)



Source: DELTA annual accounting reports

Accompanying the business volume growth, also the workforce has been increasing. In 2009 financial year DELTA employed 1.746 persons, which computes a rise in the workforce of 39,20 % regarding 2003 financial year.

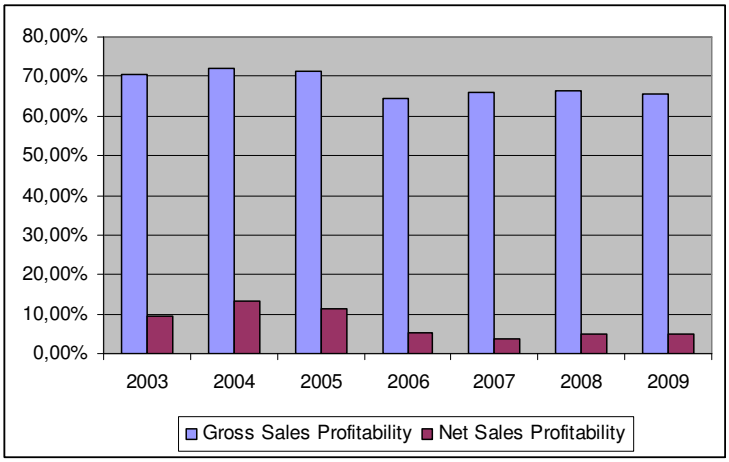
Figure 8.5 - Evolution of working force



Source: DELTA annual accounting reports

Over the same period DELTA manifest a slight deterioration of gross sales profitability. Starting 2003 with a gross sales profitability of 70,50% it turned to 65,49%, which corresponds to overall contraction of 7,10% over a period of seven financial years. Same trend is patented more clearly by the net sales profitability indicator. Over the period, it diminished from 9,62% in 2003 to 3,74% and recovered slightly for 5,11% in 2009, as shown in the following graphic:

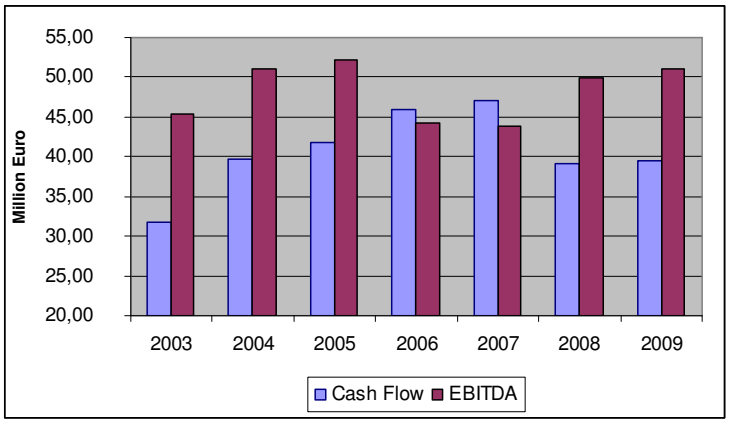
Figure 8.6 - Evolution of sales profitability



Source: DELTA annual accounting reports

Main financial indicators present a stable and strong performance, b in cash flow and EBITDA[25], although some variations occur over the referenced period, the general trend is still consistently increasing.

Figure 8.7 - Evolution of financial flows

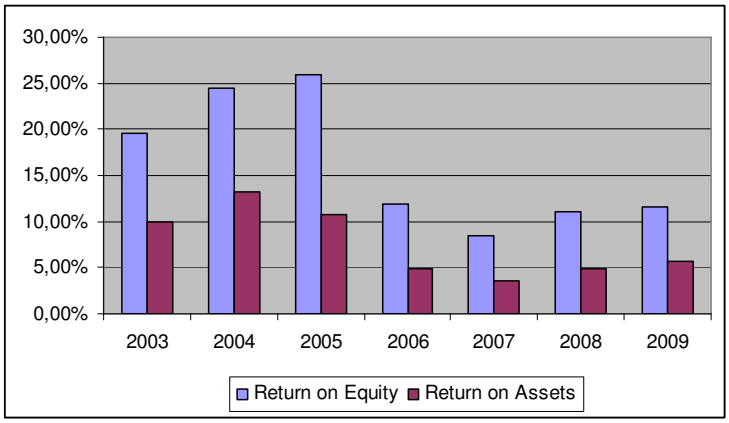


Source: DELTA annual accounting reports

The balance sheet shows three different trends over the period ranging from 2003 to 2009, as following figure completely demonstrates:

[25] EBITDA = Earnings – Interests – Taxes – Depreciations (and amortization).

Figure 8.8 - Evolution assets and equity profitability

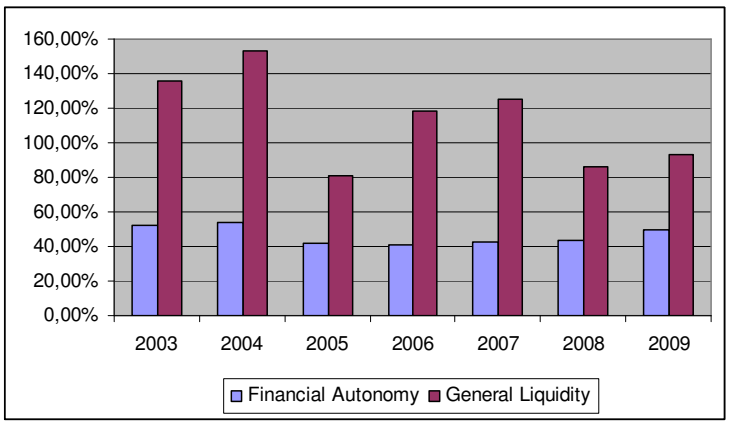


Source: DELTA annual accounting reports

The financial autonomy, together with general liquidity indicators show some of the best performance of the industry and completely explain the patented ability of DELTA for organic business growth.

DELTA's financial autonomy ranges from 52,30% in 2003 for a still amazing 49,65% in 2009. Over the same period general liquidity indicator shows a not lesser performance, ranging from an incredible figure of 135,70% in 2003 for a figure of 92,91% in 2009, like presented in the following figure:

Figure 8.9 - Evolution of financial indicators



Source: DELTA annual accounting reports

8.3 DELTA and the corporate social responsibility

Delta Cafés group achieved the first absolute Portuguese social certification, back in 2002, under the SA 8000 norm from CEPAA[26]. These norms result from several international agreements like ILO – International Labour Organization, Human Rights Universal Statement and United Nations Convention on Child Rights.

This is an enviable prize for any company, but for DELTA it is only the natural corollary for a lifetime coherence of the founder of the company as a citizen and entrepreneur and as a CEO sharing and spreading it's vision and business philosophy over the community and all over the recruited human team.

During one of the several interviews held with the responsible for DELTA Q project, when asked about the genesis of this strong feeling that the company transpires for all audiences regarding social responsibility and environment protection, after a lapse for thinking, the answer was unequivocal: "Commendation holder Rui Nabeiro is the cradle of this way of carrying on our coffee business, in every aspect it involves."

The social responsibility certification obtained allowed DELTA to frame already on-going projects and was the framework which has launched some of the critical and innovative projects in Portugal, regarding social responsibility and sustainability since then.

The well-established values of the company were organized and since then comprehensively communicated as follows:

Table 8.1 - DELTA values statement

Integrity	Transparency	Loyalty	Quality
Sustainability	Solidarity	Social responsibility	Humility

[26] CEPAA – Council on Economics Priorities Accreditation Agency

Anchored on these values statement, the company defined and assumed as a main goal to achieve, according to 2003 DELTA Social Report, "The group objective is to assure business profitability in a responsible manner with a strong and constant growth in such a way that the growing dynamics assures DELTA Excellency."

To pursue this main objective, the company recognised the necessity of commitment facing five groups of stakeholders:

Table 8.2 - DELTA stakeholders

1) Shareholders – To protect and assure a fair return on investment of shareholders.

2) Collaborators – to underline the importance of the employees for the good governance of the group; to assure proper work conditions, specially regarding hygiene and safety; to respect the employees' rights, specially the association and collective negotiation ones; to nurture the development of new ideas and talents; to provide continuous training in order to make employees more capable and active citizens; to assure without discrimination fair evolution opportunities; to promote the employee's commitment in company progress as well as to the practicing of these principles.

3) Clients – to create value for the client's business, to invest in R&D to offer products with enhanced added value as a strategy for acquisition and retention of customers and to anticipate the customer's needs in order to provide a better response.

4) Trade Partners – to reinforce the ethical principles needed for keeping well and long relationships with providers and all entities and organizations that somehow relate to DELTA, based on transparency and continuous improvement.

5) Community – to drive business in a coherent and responsible manner to assure a pro-active contribution to integrated community development and to nurture human, natural, financial, emotional and cultural resource sustainability.

The above-mentioned responsibilities are based on a comprehensive group of principles, which are boundaries for the development and driving of the DELTA business operations. Those principles are listed next:

Table 8.3 - DELTA responsible guidance principles

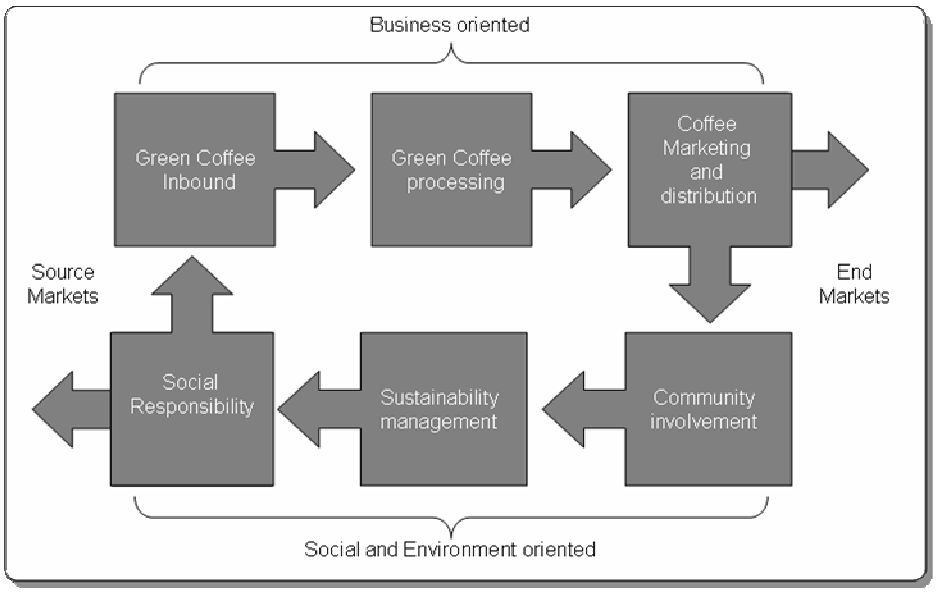
»	Economic
»	Integrity and Transparency
»	Quality and Employees health and safety
»	Citizenship
»	Zero tolerance to child working
»	Free competition
»	Communication exemption.

Following the social certification granted, DELTA framed and enhanced several important projects in different areas such as Citizenship and Sustainability.

As one of the most remarkable and important programs enhanced in the citizenship area, DELTA launched in early 2000, following the independence recognition of former East Timor, the campaign "*Um café por Timor*" (One coffee for Timor) consisting in offering 0,25 Euro for each 250 g pack of coffee produced at the factory in *Campo Maior*. The money collected this way was channeled mainly for infrastructures to support citizens in Timor like equipment and other school supplies.

Trough implementation of the tools provided by the social certification, the company could further systematize its deep social and environmental awareness. Thus the three strategic building blocks could unfold in six: the three blocks from traditional business orientation and three more came from the new social and environmental orientation, which might as well be called of sustainable marketing oriented.

Figure 8.10 - New social and environmental business model building blocks



The three strategic building blocks added provide a comprehensive vision of the new approach resulting from the paradigm shift towards a sustainable and responsible growth of business companies, nation economies and the people.

Community Involvement

From this block was possible to build wide communication channels between the company and the communities surrounding DELTA in several contexts. End-customers easily obtain information and interact with the company trough user-friendly designed websites, green telephone number and DELTA Magazine.

It should be stressed the program "Delta Planet" with its own internet address[27] where the company reunites all information about sustainability and the programs or special projects held by the company.

[27] http://www.planetadelta.pt, 12/09/2010

A traceability program was also built to ensure product quality and effective after sales assistance regarding health and safety.

It, furthermore, should be underlined the R&D efforts to develop and support HORECA[28] business in order to enhance the quality of equipments and services delivered to coffee consumers, and to assure health and safety conditions for industry professionals.

Sustainability Management

This building block comprises two of the most significant actions taken by the company towards an effective corporate responsibility and sustainability, namely "The Sustainable Coffee Origins Program" and the effective impact in logistics and regional transportation, bridging at the same time local and national government, public railway company and positive impact on business and community. Each action comprehends the following detailed scope:

1) Sustainable Coffee Origins Program – Following prior program "One Coffee for Timor" DELTA created one of the first private owned companies in Timor to stimulate coffee farmers for the need of standardization and certification of origin, branded "Coffee Timor" and to promote community sustainable development.

   Pursuant to this program ranging from the coffee plant farming, passing trough the use of local and natural fertilizer until the improvement of green coffee, DELTA could introduce in 2001 the first world selected blend from Timor Origin Gourmet, branded as: *TIMOR DIAK*[29].

[28] HORECA – Hotels, Restaurants and Cafeterias.

[29] In Tétun (the autochthonous dialect) translates into: The good coffee from Timor.

This was the standard coffee for the creation of Timor Standard and for Timor Gourmet to achieve the international origin certification of coffee from Timor.

After the 2002 harvests, the international classification created by DELTA was accepted and widespread as Timor Standard.

Timor Standard
Timor

Manaus Standard
Brazil

Mussulo Standard
Angola

2) Bridging trough companies, government and community – DELTA was decisive to motivate and bridge over several government departments, local authorities and public railway company, among other business companies and entities, turn reality the creation of the container logistics platform in *Elvas*.

These efforts come to avoid 205 kms several times a day by Lorries between the maritime platform container in *Alcantara-Lisbon* and *Campo Maior*, where the DELTA plant is located, to deliver green coffee. Only the remaining part of the route to *Campo Maior* is still assured by Lorries, in a distance of only 19 Kms.

This project allowed a significant fuel saving with positive impact in the cost structure of the company. Furthermore, it promoted job creation and cheaper logistics for other local business companies and, moreover, reduced tremendously the carbon footprint of the inbound logistics of green coffee.

Towards effective sustainability and to manage the ecological footprint from the group, DELTA implemented an environmental management system which comprehends: monitoring of energy consumption, carbon dioxide (CO_2) emissions, water consumption

(both from public or own supplying), waste production from coffee processing and packaging (by toxicity and terminal disposal).

Social responsibility

The last added strategic building block stands up for the full integration of the traditional business model with the one resulting from the new marketing management approaches like CSR and sustainable development. Thus the program created for the origin certification: Timor Standard gave place to the development of similar programs in Angola, S. Tomé e Príncipe and Brazil, and thus, contributing decisively for the enhancing of the coffee production (in quantity and quality) in a social and environmental manner.

Those programs are based in three complementary dimensions of intervention designated: Origins Sustainability/Local Sustainability, Fair Trade and Eco-Efficiency.

Together with other international programs and standards, life conditions of the farmers and local producing communities are improved as well as biodiversity and carbon sequestration.

These goals are to be achieved trough the widespread communication of the several international origin certifications which ensure the above goals and action principles. In this condition are the following coffee international origin certifications:

Table 8.4 – DELTA's coffee international certifications and standards

» Organic – Biologic coffee produced under sustainable principles without fertilizers and independently audited and certified.
» Rainforest Alliance – aims to improve biodiversity by planting the coffee plant in poor soils and manages the whole pollutants from machine fuel to human effluents of the community. This program also intervenes over the population assuring quality food and drinking water as well as the health services and medical aid.
» Shadow Coffee – Is a coffee harvested from plants in the shadow of bigger trees, which allows a slow growth of the grain and produces a coffee with a high quality and strong scent. These kinds of coffee plants also provide shelter for birds and promote biodiversity.

As a natural corollary for DELTA group, each company developed efforts towards certification under several international norms and standards, beyond the ones directly related to coffee sourcing origins, blending and marketing. This way DELTA was the first Portuguese company to achieve Quality certification under ISO 9000 for the toasting industry, back in 1994. Later it was also the first Portuguese company to be granted with quality product certification for the blends *Delta Selecção*, *Delta Ouro* and *Delta Platina.* Following is presented a list of all certifications and group companies audited according to each norm requisites:

Table 8.5 - DELTA international granted certifications

Norm	Granted Company	Group Companies Audited
SA 8000:2008 ISO 22000:2005 NP EN ISO14001:2004 OHSAS 18001:2007	Novadelta SA	MRAN Lda. Delta Cafés – Madeira, SA Torrefacção Camelo, Lda. Novadelta – Espanha, SA SIEC, SL Novadelta – França, SARL
EMAS	Novadelta SA	
NP ISO 9001:2008	Novadelta SA	
HACCP Reg.852/2004		MRAN Lda. Delta Cafés – Madeira, SA Torrefacção Camelo, Lda. Novadelta – Espanha, SA Belíssimo Cafés, Lda.

8.4 Delta Q

On November 2007, DELTA enters the segment of capsulated coffee with its newly created brand **Delta Q**. This moment is one of the most important milestones of the company history for two reasons. First DELTA is not even a big Portuguese business company and could dare the giant Nestlé in its very own game. And second, commendation holder Rui Nabeiro shoots back twenty years after Nestlé tried to by his business to enter Portuguese coffee market trough the leading marketing share company.

Capsulated coffees are a niche of the general coffee market segment, specially associated with domestic consumption, which represents about 27% of the total coffee consumption. Nevertheless, entry to this niche requires not only to master all the competences to market coffee in all the remaining traditional segments and channels, but also to assure the

availability of a pressure machine with all associated details like sourcing the machine, capsule compatibility assurance, distribution and sales channels, after-sales technical maintenance, end-life machine disposal among many others.

To well manage the whole issues related to capsulated coffee was a real challenge to add to all the others that DELTA's management team had to deal with.

Capsulated coffee history goes back as far as 1901 when Mr. Luigi Bezzera invented and assembled the first Espresso Coffee Machine. According to the Bezzera's factory website, the machine was publicly unveiled at the Milan International Fair in 1906, where Mr. Bezzera presented an absolute novelty: the first automatic espresso coffee machine[30].

Luigi Bezzera
Espresso Coffee machine - 1906

Back in 1970 Nestlé correctly anticipated the further development of domestic coffee consumption and the trend for increasing demand on Gourmet coffee, and decided to reinvent Mr. Bezzera's original concept and drastically modernize and simplify the use of espresso machines along with dramatic size reducing to fit a wide range of users and situations. Due to this strategic decision, in 1986 "Nespresso SA, was set up in Vevey, Switzerland with a staff of five including one secretary. Nespresso is launched in Switzerland and Italy with the C100 and C1100 machine models manufactured by Turmix and targeted to the office coffee service sector. Capsule production begins in Orbe, Switzerland, and coffee varieties include Bolero, Capriccio, Cosi and Decaffeinato."[31]

[30] http://www.bezzera.it/home_ing.html, 20/02/2011

[31] Nespresso Professional, Company History
http://agents.nespresso-pro.com/en/about/history.html, 20-02-2011.

According to Nespresso website, the development of a "totally integrated system, after long years of research and many patents, revolutionized the portioned coffee market and started a new era of encapsulated coffee." Moreover, all those patents, many years later, made harder the task endeavoured by DELTA. Indeed, to be possible for DELTA to enter this market, it would have to overcome several obstacles, of which Nespresso patents were not the lesser one.


Nespresso C100

Nespresso entered the Portuguese market in 2003 with the machine model C100, and swiftly took advantage of almost two decades of international experience and on the *élan* around Nespresso Club exclusive stores.

In turn, for DELTA entering this niche, although it was a marketing opportunity due to Portuguese coffee market maturity and approach to international mainstream behavior and needs, it was also, and perhaps more determinant, a market pressure from Portuguese customers, who revealed an extreme trust and fidelity to brand and company. In fact, end-consumers and professionals flood DELTA with letters, e-mails and even direct approaches to company professionals at several levels, demanding the chance to enjoy at their homes the delight of a high quality capsulated coffee, but from a Portuguese brand, especially from DELTA.

Delta Q entry level was the model M55 with a price of 149,90 Euro. The more sophisticated model Bugatti, for higher and demanding segments was priced at 499,90 Euro. There were launched seven blends of certified origin coffee like shown in the following table:

Table 8.6 - Delta Q coffee blends and intensity

		Intensity	Blend
deQafeinatus		1	Asian Robusta beans and South American Arabica beans
deliQatus		3	Selection of exotic flavours. Light, but with a keen flavour
Qonvivium		4	Selection from the best coffee grains from Tanzania, to Panama and Uganda
Qonvictus		5	A touch of the Indies and a balanced selection of aromas from Tanzania and Costa Rica
aQtivus		8	Selection from Laos, Vietnam and El Salvador
Qharacter		9	Fine blend of flavours from Ivory Coast, Colombia and Brazil
Qalidus		10	Rich combination of Robusta beans from the Cameroon and Angola, and Arabica beans from the Honduras

With flavour intensity ranging from 1 (fewer intense aroma and taste) to 10 (the mostt intense aroma and taste), starting with a decaffeinate blend and finishing with a strong coffee.

The end-user coffee price was 2,50 Euro for a carton with ten capsules for every blend without distinction. Current 2011 price is 2,90 Euro, which represents a price inflation (by the end-customer) of 16% in the fourth year after launch.

Until January 2011, more than 10 million Delta Q capsules were sold.

Capsule development

To overcome the Nespresso international patents regarding the aluminium coffee capsules, there was the need to design a new capsule, assuring optimum coffee quality conservation, easy to use, compatible with available coffee machines technical restrictions, and that should be recyclable. This was a major pre-requisite since the very beginning of the project. Due to DELTA's social and environmental involvement, the ability of both capsule and coffee should be susceptible to recycling and valorization after consumption. This early preoccupation turned more recently into an autonomous project to be presented later in the research.

The design process for the DELTA Q capsule was assured with a full commitment of DELTA's technical and human resources with the involvement of a University Laboratory.

Machine sourcing and development

The need to develop a brand new capsule for coffee with special characteristics like recyclability, determined the need for a new coffee machine, regarding which materials the capsules were made of, the water pressure and temperature necessary to assure coffee quality and properties in an everyday situation, among several other requisites.

In 2009 in collaboration with Diverge Design, DELTA launches the coffee machine QOSMO. The first capsulated coffee machine 100% projected and manufactured in Portugal. Once more, DELTA patents and takes advantage of national know-how and partnerships to innovate and achieve marketing differentiation and leverage.

The new machine, besides the national design and modern looks, also unveiled a new trend regarding urban young market segment of end-customers. The machine was specifically designed to be compact and fully portable, incorporating multi-coffee dispensing function.

Until January 2011, were sold more then 220 thousand Delta Q coffee-machines.

Distribution and promotion

The strategic marketing options of DELTA reflect its own approach to markets where it is present, and clearly substantiate a differentiation strategy. While Nespresso supported their strategy on exclusiveness and selective distribution, privileging direct access to end-customers, DELTA opted for widespread and easy access of customers to the brand, taking advantage of existing partnerships with modern distribution, hyper and supermarkets, and some punctual agreements with specialized retailers. One can find in this case the Media Markt chain of domestic electronics and appliances, and Spanish retailer El Corte Inglés. This last one also was extensive to Spanish market.

Of course, promotion and communication strategies ought to be different due to enormous disparity of reachable resources of each one of the companies. Nevertheless, DELTA took clever advantage of recognitions and trust levels that the brand evidence in Portuguese market, developed an advertising strategy based on one of the most recognised entertainers young talents in conjunction with the intensive use of the new technologies of communication like the internet and viral marketing.

8.5 DELTA's Rethink-Eco-Project

According to DELTA's press release of July 1st, 2010 on Rethink, "the project created by Delta Cafés aims to close the cycle of coffee. Is an integrated research project of waste recovery produced by the company's activity and the coffee consumption. This is a unique project in Portugal to be integrated and analyzed. Given the power of the entire coffee cycle, including the consumer and the waste generated, it is an enormous value source."

The project breaks into four integrated tasks to accomplish the main goal of adding economic value to coffee grounds and used capsules from Delta Q consumption.

The four main tasks of Delta Rethink project are:

1) First task consists of comprehensive logistics network of distribution assessment, in order to develop a cost effective reverse logistics system, to recover coffee grounds and polyethylene capsules back to industrial facilities. Thus it is possible to add value to the otherwise waste and to re-launch it into a new economic cycle of production.

2) Second task relates to Delta Q coffee capsule (containing dreg) collection in Delta Q's specific designed containers, named Capsulões, in selected locations like Delta Q own stores, partner híper and supermarkets and large professional end-customers like offices, plants and warehouses.

3) Third task is the life cycle assessment (LCA) of Delta Q coffee machines, in order to assess the environmental impact. At the same time, it will be identified the material components and processes which allow further development and production of more environment-friendly coffee machines and accessories. It, furthermore, will be assessed the technical and economic viability of reintegration Delta Q coffee capsules and machines waste into fabrication of new Delta Q equipments and accessories.

4) Fourth task focus on R&D processes to add value to dreg.

DELTA is developing this project with third party partners. Regarding the container collection for used coffee capsule's design, it counts with the services of a most young and innovative design company – Diverge Design (http://www.divergedesign.com).

On R&D resources and facilities, DELTA relies on UNIDEMI – R&D Unit in Mechanical and Industrial Engineering from *Universidade Nova de Lisboa* (http://unidemi.fct.unl.pt/). For the dreg recovery research, DELTA counts with the collaboration of IBET – Technologic Experimental Biology Institute (http://unidemi.fct.unl.pt/), the largest biotechnology research organization in Portugal. Delta Rethink Eco-Project is funded by DELTA group and by public funds from QREN[32] , which contributes with a grant of 2 million Euro. Company own financial resources for the project were not disclosed.

The project aims to collect in the first twelve months more than two hundred tonnes of coffee grounds. Later, with the increase of end-customer environmental awareness and the multiplication of used capsule collection points, it sure will be possible to grow substantially this figure.

[32] National Strategic Reference Framework - http://www.qren.pt, 20/01/2011

After six months project, DELTA collected 477.000 used coffee capsules and added value to more than twelve tonnes of coffee grounds.

As main results of this, under all aspects an innovative project, DELTA aspires to know and to devise alternative ways to extract more value from dreg and its wide utilization options. They vary from cosmetic industry, nutrition and energy to biological farming.

Beyond the self-evidence of the critical importance of this project, must be underlined the absolute innovative approach and scope.

If one takes into account that Nespresso recycling project is focused mainly on the recovery and further utilization of the aluminium capsule[33] (as far as it is public from Nespresso website and traditional media communication coverage).

Rethink-Eco-Project project manifests a complete and new breath landscape for dreg reutilization and to extract more economic value from it. It should be taken into account that DELTA as a leader of the Portuguese coffee market produces annually over 20 thousand tones of coffee, which corresponds roughly to 40 thousand tones of wet dregs.

[33] http://www.ecolaboration.com/#/aaa/pt/capsules/recycling/Portugal, 21/02/2011

9 DELTA Q SUSTAINABLE MARKETING AUDIT

In the next chapters will be developed and presented the actual sustainable marketing audit to Delta Q. The audit starts by scope's definition and a brief review of the targets to meet against sustainable marketing basic goals P2 (pollution prevention) and R2 (resource recovery).

Then the research finds the answers for the questions gathered trough the marketing audit checklists, where are covered the following main questions: company overall assessment, product assessment, distribution channels assessment, promotion and communication assessment, pricing assessment and target markets (or market segments) assessment.

9.1 Sustainable marketing audit scope

Sustainable marketing audit to Delta Q aims to achieve a comprehensive full detailed product profile, regarding its market characteristics and performance, in relation with its environmental footprint.

In other terms, it is desired to understand the position of the product in the PSLC and identify its sustainability performance, waste generation by production processes and by consumption. The marketing diagnostic will enable DELTA to understand its strategic current position regarding P2 and R2 goals framed by strategic environmental matrix.

It thus becomes possible to draw a comprehensive sustainable marketing plan for Delta Q under a double perspective: to drive sales growth and profitability by its own efforts and do so in an ecological and social manner, ensuring resource use reduction and preventing pollution trough waste management and recycling.

To accomplish the marketing diagnostic, and since this is essentially a qualitative research, will be followed roughly the marketing-mix approach and will review in detail:

1) Product environmental impacts, waste generation by production processes, distribution and consumption;

2) Pricing process and components, in particular, environmental or/and social cost internalization, profit margin available to foster consumer behaviour change;

3) Distribution restraints and requisites for waste generation, energy efficiency, environmental and social issues and channel communication;

4) Green communication assessment for environmental and social issues associated with product consumption, like alternative uses, waste generation and terminal disposal.

Sometimes DELTA Cafés data is provided for understanding the landscape where DELTA Q was born and is daily managed. Other times, because there is no product-specific (Delta Q) available data on the subject, like Delta Q's specific waste generation while in industrial processing, or diesel consumption for distribution.

On another hand, sometimes when researching a specific issue or process, the analysis ends on studying and assessing the company, rather than the product-specific Delta Q. This can occur due to the nature of the process involved, or because it is impossible to isolate clearly the Delta Q's own process. This happens because Delta Q is one coffee product among many others from the company portfolio, including even tea. Nevertheless, and despite difficulties, every question was answered as close as the research demand and the data available has allowed.

Financial and environmental data is provided in order to understand the overall present context of the company and product-specific, as a basis to define the window of strategic opportunities available, not under a theoretical standpoint, but rather feasible and at DELTA's marketers reach.

Since present research is a qualitative study, special emphasis is cast on significant information in order to understand origins and constructs behind implemented strategies, and to devise probable consequences on the medium and long run for the brand.

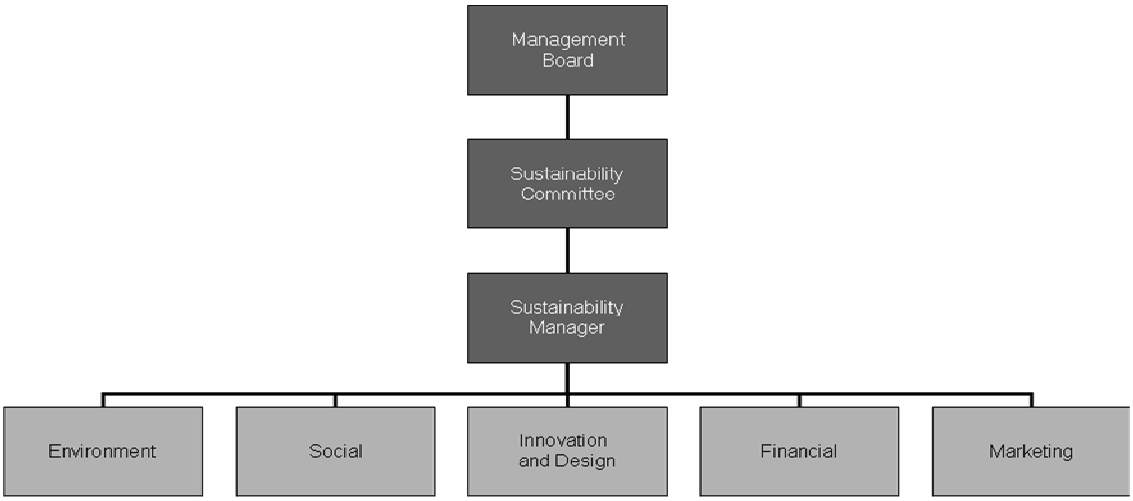
9.2 Environmental company culture

9.2.1 Company environmental statement

The company has an environmental commitment since 2002, when was granted with social responsibility certification by Norm SA 8000 from CEPAA – Council on Economics Priorities Accreditation Agency. It thus has also been committed to environment and sustainability and have incorporated that same commitment at the highest level of strategic guidance, which are the company's very own VALUES STATEMENT as follows: "Integrity; Transparency; Loyalty; Quality; Sustainability; Solidarity; Social responsibility; Humility."

Environment also occupies an important position at the business principles to respect by DELTA management and employees: "Participative governance; Sustainable business; social and Environmental responsibility." Moreover, the company took its environmental commitment really serious, and reorganized itself in order to accommodate new values, and guiding principles. To do so was created an environment management system with the following organic:

Figure 9.1- DELTA's environmental management system



This system, directly depending of the board counts, with a full time manager for sustainability that supervises every project that deals any in way with environmental issues. The system meets every forth day, and eventually as needed.

To monitor the ecological impact of industrial and marketing processes, although there is a widespread academicals and business uncertainties on how to define and agree on the right indicators to measure sustainability[34], DELTA selected an array of indicators to track, resumed as follows:

Table 9.1 - DELTA's environmental indicators

Energy Profile	Tracks on the type of energy consumption split by natural gas, gasoline, diesel and electricity.
TOE[35] energy consumption	Tonnes of Oil Equivalent (TOE) – Measures energetic consumption compared with oil energy equivalent

[34] Simon Bell and Stephen Morse, "Sustainability Indicators – Measuring the immeasurable?", Second Edition 2008, Earthscan, London, UK.

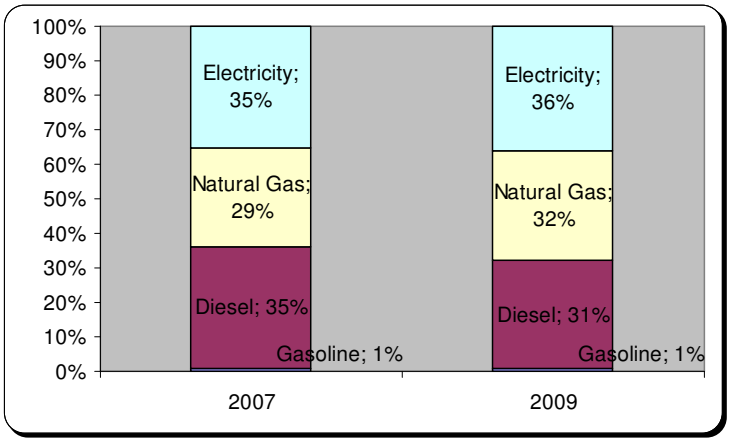
[35] TOE – Tonnes of Oil Equivalent. OECD Glossary of statistical terms.

TOE / Tonnes of coffee sold	Rate between energy consumption and effectively sold coffee. It can be interpreted as sales energy efficiency.
CO_2 total emissions	CO_2 emissions are estimated by type and quantity of energy consumption like electricity, natural gas and fuel, according to APA[36].
CO_2 / Tonnes of coffee sold	Total CO_2 emissions by coffee effectively sold. It can be interpreted as sales carbon efficiency.
Packing waste production	Tonnes of packing waste generated for coffee processing, packing and marketing. This waste is outside of *Ponto Verde* management system which accounts only for the packing casted onto marketing channels.
Waste production treatment	Total coffee processing waste generation by type of final destination: value adding or terminal disposition.

To manage effectively the environmental impacts and constrain from coffee production and marketing, and as a direct result from social certification, DELTA monitors environmental stewardship trough the above set of indicators. DELTA has a rather equitable distribution of energy sources. It consumes a minimal quota of gasoline and the remaining sources' weight about one third each of total energy consumption, like is shown in the company's energy consumption profile figure:

[36] Portuguese Environmental Agency, http://www.apambiente,pt

Figure 9.2 - Energy consumption profile

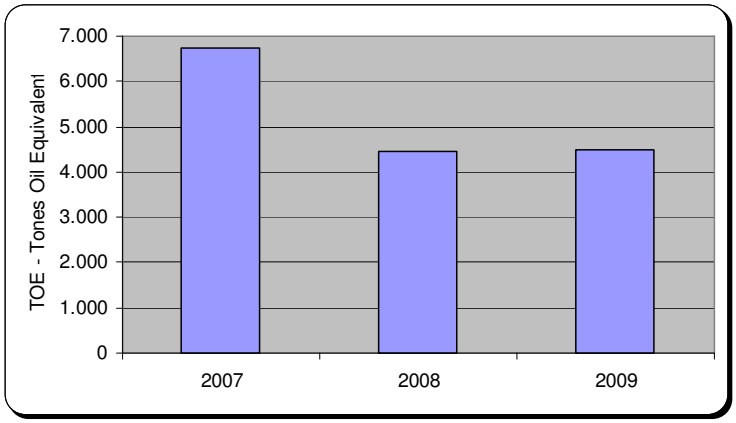


Source: Delta 22007 and 2009 Sustainability report

Special emphasis should be cast on efforts to swap certain heat production energy sources from diesel to natural gas, which has more heating produce efficiency and burns in a cleaner manner, i.e. emits less CO_2.

The company has been implementing more cost-effective processes in order to achieve better environmental performance. Analysing total energy consumption, measured in TOE (Tonnes of Oil Equivalent), DELTA is reducing its energy consumption even with coffee production growth, like shown in the following energy consumption evolution graphic:

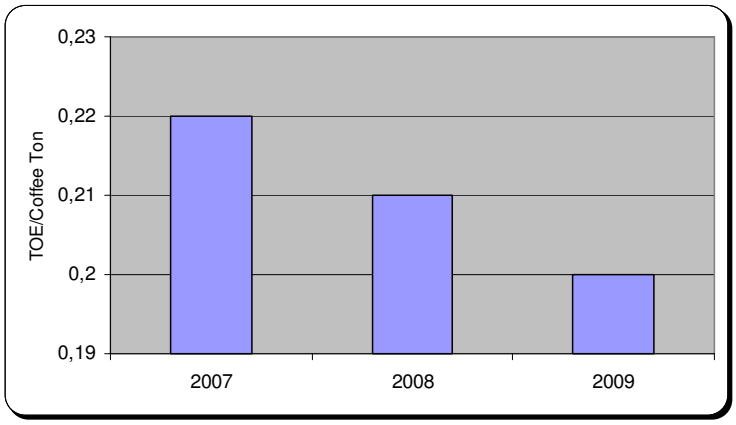
Figure 9.3 – TOE energy consumption



Source: Delta 22007 and 2009 Sustainability report

As shown in graphic bellow, total energy consumption by total coffee sales has been decreasing and patents a 10% reduction from 2007 to 2009:

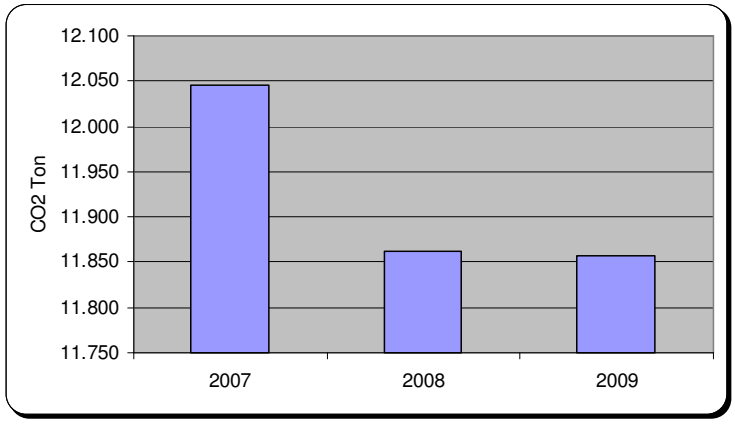
Figure 9.4 - TOE by Tons of coffee sold



Source: Delta 2007 and 2009 Sustainability report

Delta is also committed to reduce its carbon footprint by actively manage CO_2 emissions. Following graphic shows a 200 tonnes reduction on carbon dioxide emissions, from 2007 to 2009:

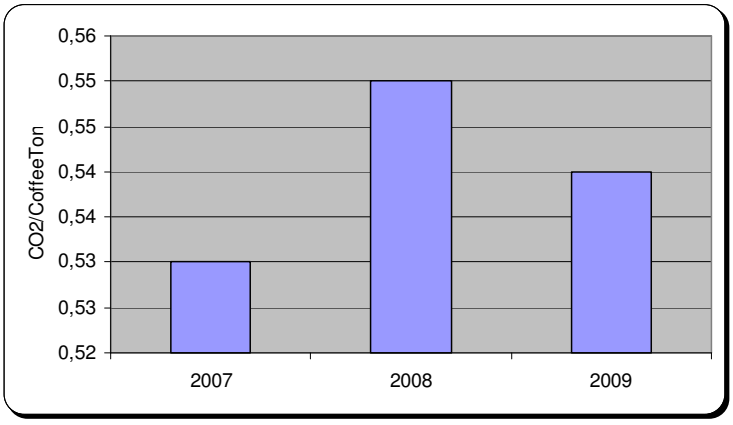
Figure 9.5 – CO_2 total emissions



Source: Delta 2007 and 2009 Sustainability report

Same trend is confirmed when one takes into account carbon dioxide emissions by tonnes of coffee sales, which show a drop from 0,55 Tonnes of CO_2 emissions to 0,54 Tonnes of CO2 between 2007 and 2009 while sales evidenced important increase, as shown in the following graphic:

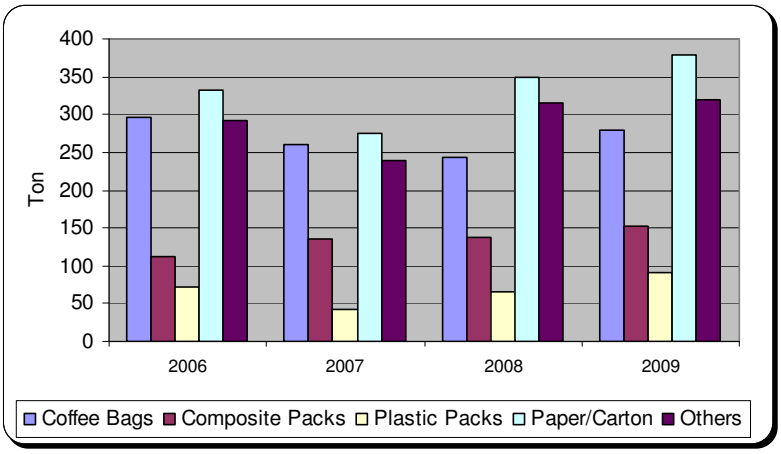
Figure 9.6 - CO_2 emissions by Tons of coffee sold



Source: Delta 2007 and 2009 Sustainability report

Regarding Delta Q's packing waste production, DELTA faces an adverse and low-eco-responsibility awareness from suppliers and distribution channels. All packing systems are built to fulfil transport and delivery requirements, both from inbound and outbound logistics. Beginning with green coffee imports until hyper and supermarkets distribution chains, becomes boldly evident the disregard for re-usable transport and distribution packing's, which would allow less packing waste producing and reduced distribution operation costs as will be detailed further on the present report. At the same pace as the sales growth, packing material and waste generation also have grown as evidenced in following graphic:

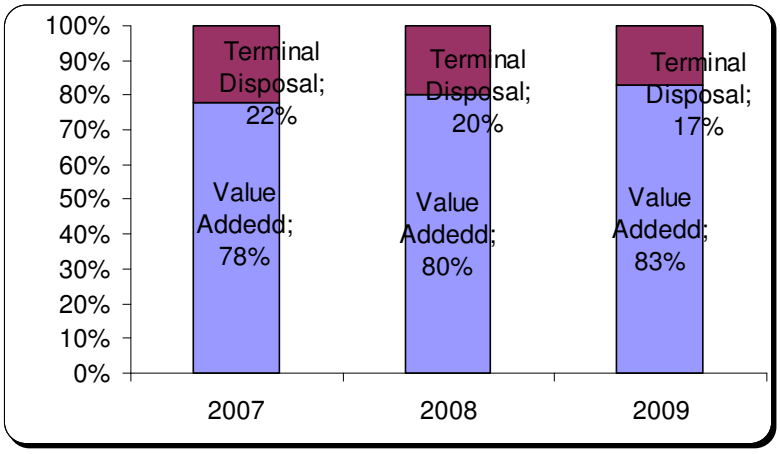
Figure 9.7 - Packing waste production



Source: Delta 2007 and 2009 Sustainability report

DELTA pursues a coherent conduct with its mission and values statement and in accordance with social certification granted. Thus from all waste and rubbish generated by coffee business, the way the company faces its commitments translates in a permanent effort to enforce 3 R's[37] environmental management principles, and that is evident by the amount of annually value added waste. As well as the amount of terminal disposal waste, without further valorization reduced almost 23% from 2007 to 2009, as evidenced in the graphic bellow:

Figure 9.8 - Waste production treatment



Source: Delta 2007 and 2009 Sustainability report

9.2.2 Social and environmental reporting

Since DELTA was first granted with Social Responsibility Certification, it issues a Sustainability Report every two years. It should be noted that Portuguese state, so far, has not made mandatory any kind of social or environmental accounting or reporting, thus every move from DELTA towards social and environment responsibility, sustainable development and ecological stewardship, has been an act of will.

[37] 3 R's stand for Reduce, Reuse and Recycle.

Although Portuguese government had approved *The National Strategy for Sustainable Development*[38], and the respective plan of implementation under the form of law (also approved by the parliament), the effective result hadn't overcome the creation of commissions and group discussions. Which has supported and promoted several good ideas and odd projects, without any real impact on transporting for practice the imperatives of the new sustainability paradigm. Thus failing to help business companies to contribute and effectively participate in the change that humanity demands.

The company sustainability report usually presents the following structure, which roughly follows the six strategic building blocks detailed above (see Figure 8.10):

Table 9.2 - Delta sustainability report structure

1. Introduction – Where it is reviewed last couple of years most important achievements at a strategic and governance level.
2. Green coffee Sourcing – Accounting on evolution of projects related to coffee sourcing, farming communities, new projects and figures for volumes, conditions and relevant economic or social facts related.
3. Coffee processing – Coffee blends produced, green grains quality analysis, toasting, milling and packaging processes, quality management system, treatment of complaints and suggestions and food safety.
4. Marketing of coffee – Reports on guidance principles and relations with clients, both professionals and end-customers, as well as communication channels used and under development. It also presents marketing data like sales volumes by sales departments, number of national and international clients, distribution channels and logistics, customers retaining and loyalty policies.

[38] National Strategy for Sustainable Development was approved by minister counsel resolution of June 30th 2007 with number 109/2007, and published in Republic Diary, 1st Series, Nº 159, August 20th 2007.

5.	Social responsibility – This chapter divides into five parts. The first part of the chapter covers the person's management principles, equality policy, employee's perks and benefits, health and safety, agreements and collective bargaining, employee's performance assessment model and training programmes. The second part reports on DELTA's specific environmental program – DELTA PLANET. The third part covers all initiatives, programs and partnerships related to community, like DELTA community support, associations funded by the company, child and family support, educational centres and volunteer programs among others. The fourth part is dedicated to R&D and innovation. And the fifth part is relative to partners and partnerships promoted or supported by DELTA group.

9.2.3 Company current environmental and social programs

DELTA is a paradigmatic case of social responsibility from the top to bottom level of the group. Starting with the early awareness of its charismatic founder until full commitment of management and integral support from employees is the only rational manner to justify the involvement of the company in so many projects, beyond every difficulty and obstacles within day-to-day business.

Presently, the company is involved in the following projects and programs:

Table 9.3 - Delta current social and environmental projects

Social Responsibility	Environment and Sustainability
» Heart DELTA association – Solidarity association to promote volunteer and social support programs. » Educative centre Alice Nabeiro – child	» Eco-Schools – International program to raise in children and young the awareness for environmental issues and responsibility

integrated training centre to bridge science, culture, technology in order do develop better citizenship. » Entrepreneurship manual – Ideas to shape the world. Aimed to promote children awareness for the benefits of technology in profit of environmental issues. » Early support to children and young development – count with a multidisciplinary team in order to early identify and prescribe adequate treatment of children under 6 years old with special needs regarding learning and speech. » Heart called DELTA – Employees volunteer program on promotion of humanity principles and social integration. » Prize – Health partnerships in result of previous programs on hearing deficiencies tracking with children under 9 years old. » Time to Give – A partnership wit SIC (television channel) aiming to support institutions developing proximity volunteer programs. » Dreams factory – A partnership with Sonaesierra (mall promoting and	» Rethink Eco-project – public funded project to recycle coffee capsules and coffee grounds. » Sustainability at origins – Promotes coffee planting and quality sustainability integrated wit social responsibility for farmer's community, enhancing health and safety living conditions. » Machine recycling mission – road show and collection campaign of domestic electric machines for recycling. » Eco-efficiency - production of more goods and services with fewer resources in energy and material inputs.

management) in order to support Terra dos Sonhos association which supports children with chronic diseases. » Poppy Mission– A program to support Poppy school which is the only Portuguese training facility for vision impaired guiding dogs. » Paca Cow – DELTA sponsored a cow for Madrid's annual cow parade, based on the offer by DELTA of one thousand breakfasts to Spanish association against Cancer, for each one thousand Paca Cow website registered users. » Young and sports foundation – in association with other Spanish business companies and regional government of Extremadura (Spain) aims to promote the young interest for sports practicing. » Fair Trade - better prices, decent working conditions, local sustainability, and fair terms of trade for farmers and workers in the developing world.	

9.3 Target markets assessment

DELTA launched Delta Q endeavour under end-customers market demand. Which in addition with already known characteristics from end-customers, like the trust the brand DELTA enjoys, level of distribution coverage and market share, was a determinant in favour of the project study, planning and implementation under certain initial pre-requisites like the recyclability of the capsule, among others.

Hence, no special market study was developed in order to determine significant product benefits or distinctive features to take advantage on. It was kind of a piggy-back strategy, once competition had already established product concept (regarding coffee capsules and proprietary coffee machines need).

Once again, echoes the idea of misusing the opportunity to build a sound and full-successfully product marketing strategy. Indeed Delta Q marketers would have a lot to gain in robust planning and effective budgeting if they could consider critical end-customers insights regarding:

1) Target market segments and their demographic and psychographic characterization;

2) End-customers decision making models and buying behaviour;

3) End-customers system-beliefs about green products, waste generation (by producing and consuming the goods), reusability or/and recyclability;

4) Target-markets environmental perception about product category;

5) Target-markets perception about company "greenness" or ecological and social commitment;

6) Present and future green market-segments relevance for the company's strategy.

9.4 Delta Q Sustainability assessment

9.4.1 Waste generation by product processes

Delta Q production process does not stand for any particular issue concerning pollution or waste generation in addition to the ones resulting from coffee processing in general.

Delta Q capsules are made of inert polymer[39] and are produced on the plant site with residual waste generation that is easily reintroduced into the productive process of new capsules. However green coffee processing deals with some environmental issues, like: residual ashes from toasting process, carbon dioxide (CO_2) emissions and liquid effluents from grain washing and human related.

Regarding liquid effluents production it should be noted that they are totally processed at the wastewater treatment station and 67% (2007) of them were reused in irrigation, the remaining part joins the public sewer system.

Only one percent of total waste generation by coffee processing was toxic. From a global amount of 1.119 tons, in 2007, by 2009 was achieved one important goal: toxic waste was reduced to zero.

From DELTA's total waste production, only 17% face terminal disposal, the remaining part is further valued or recycled.

The most bulky waste the company has to deal with is related to inbound logistics and packaging. DELTA stresses the efforts to reuse (as possible) green coffee bags[40].

Packaging also poses important waste generation issues that have been limiting some environmental goals' achievement. The boundaries regarding outbound logistics and packaging are the direct results of the marketing channels pressures and end-customers demands. While retailers press for easy and more cost-effective (meaning small) stock

[39] Polymer is a substance which has a molecular structure built up chiefly or completely from a large number of similar units bonded together, e.g. many synthetic organic materials used as plastics and resins (Oxford Dictionaries Online, http://oxforddictionaries.com, 22/02/2011).

[40] Bulk green coffee is traded in international standard 60 Kg bags.

keeping units and selling units. Consumers demand easiness to use with attractiveness, disregarding many times the environmental pressure from a small 20 cm carton box[41].

9.4.2 Design, use, composition and terminal disposal of the product

Delta Q is a product-specific design to a target market segment, but due to its very nature (coffee) there is no other alternative use. So, there are some critical aspects related to its consumption tied with proprietary coffee machine. Even if the produced coffee-machines are much lesser than the thousands of coffee tons consumed every year.

Coffee-machines are still a problem when arriving at its life cycle ending, regarding recycling and terminal disposal. This problem is being already addressed by DELTA, not only through the collection campaign for used equipments, but also trough one of the tasks committed to Rethink-Eco-project program, which aims to define new recycling and re-use standards, as well as the integration of recycled materials into its production.

Capsules also pose important issues regarding recycling and terminal disposal of the polymer and the dreg. Taken apart each material is relatively easy to recycle and reuse. Polymer can be reused in the production of other lesser quality "plastics" after milling, and the dreg can directly be used with significant value and quality as a fertilizer. However, taken together they pose a critical problem: material separation. And take into account that the capsule contains also a paper filter film and an aluminium film for sealing.

To deal with those issues DELTA launched the project Rethink Eco-project detailed earlier (see chapter 8.5 – DELTA's Rethink-Eco-Project).

[41] A regular toothpaste carton box consumes the wood equivalent to 2 or 3 branches from an adult pine tree (estimated on estimates from Boise Cascade, Idaho, USA, http://ecology.com/features/paperchase, 22/02/2011).

Regarding the capsule, since the beginning of the project Delta Q, the company has posed its recyclability as one of the main projects requisites, which are assured since launching of the brand. The same occurs for separation process of capsule and dreg. The challenge that Rethink-Eco-project also addresses is to reduce the cost of this separation. However, prior to face the problems of material separation, it must be figured out how to motivate end-customers to pro-active initiate the recycling chain by depositing used-capsule in the special collector placed by DELTA, rather than throw them for the domestic rubbish basket.

The other issue that Rethink-Eco-Project also deals with is adding value to the coffee grounds. Although there are plenty of alternative uses for dreg, its adding value under the light of sustainable marketing boundaries and waste management principles, is only possible if economically viable.

9.4.3 Alternative roles of the product regarding recycling, re-utilization and materials transformation

Due to its own nature, once coffee is food and that is all the need it satisfies, there is no devisable alternative role for this product.

Regarding the capsule, there is (so far) no viable field for reuse beyond creative domestic applications for leisure.

For the coffee grounds, it is possible the direct re-utilization as plant fertilizer, which is common in many suburban areas. However, the same does not apply for capsulated coffee, which demands some industrial approach, due to small quantity of dregs for each used capsule.

Regarding the exclusive coffee-machine associated to Delta Q, they are to be selectively collected at the end of its life cycle for proper terminal disposition after disassembling and retrieving toxic and non-degradable components.

9.4.4 Main product benefit to end-user changing or enhancement

For the same reasons stated above, there is presently no alternative use for capsulated coffee. There is, however, some enhanced alternative use for the machine coffee proprietary of Delta Q, considering some design modifications. Taking into account that a good domestic Delta Q coffee demands water at about 90^0 Celsius degrees, it could be considered the viability of enhancing alternative uses for the coffee machine, like heating (or boiling) small water portions, since the physics behind are the same.

9.4.5 Reducing/eliminating waste generation (solid or liquid) and toxic emissions from the production process

In 2009 DELTA has achieved the goal of zero toxic solid waste generation. This is remarkable in face of the absence of legally imposed limits for toasting coffee industry emissions.

Of course, there is always room for improvement. Moreover, considering the technical and scientific development pace, it is very likely that new technology and processes arise to pollute less, to consume less energy, or just to make the industrial processing of green coffee more cost effective, which will result in a shorter ecological footprint.

Depending on investment costs, there is some viable opportunity to incorporate more recycled water into the productive process. Once only a part of the treated water from water treatment station is reused for irrigation, it is possible, trough a simple decanting process, to enhance treated wastewater quality, not for human drinking but for washing operations and WC flushes.

Regarding plant illumination, there is also a new array of cost-effective solar-related solutions, in order to bring sun light inside constructions recurring to aluminium mirrors that concentrate the sun light.

Furthermore, a new generation of photovoltaic solar panels is emerging, with longer productive life, more efficient cells, and above all, cheaper prices. Other opportunities may arise from technical development on the way, and are worthwhile to be close monitored, like more efficient carbon sequestration filters for chimneys or more energy effective toasting ovens and mills.

9.4.6 Waste produced by packaging at different stages of inbound, production and marketing processes

To DELTA, packaging is one of the most critical cost drivers and waste production source. Starting with the reception of the green coffee and the 60 Kgs bags, where coffee grains are carried, and finishing with the packaging necessary for stock keeping, distribution and selling units to end-customer, there is an enormous amount of paper and carton, aluminium film and plastic film, and even wood.

Inbound logistics produce essentially rubbish bags from the reception of green coffee.

Processing (toasting and milling) produces an array of subsidiary input packages for coffee processing like cans (plastic and metal) and a multitude of rubbish from carton boxes to plastic bags of varied dimensions.

At the end, with the finishing of the Delta Q capsules it is necessary to pack them in different 10 capsules carton boxes (selling unit) for each blend. It is then necessary to pack 50 boxes of 10 capsules from the same blend in a larger box (distribution unit). It is then necessary to put together 40 of these boxes to assemble one pallet (transport unit) of the same blend. Finally, the pallet is coiled with retractile plastic and is ready for distribution both for DELTA sales departments and distribution chains central warehouses.

Given the packaging classification from *Ponto Verde*, three levels[42] of packaging were applied: 1st level (or primary) packing corresponds to the selling unit, 2nd level (or grouped) packing is the distribution unit and 3rd level packing is the transport unit.

All of them are subjected to annual contribution for *Ponto Verde*, regarding the type of packing material and quantity and weight of packing launched into the distribution channels and consumer markets. Hence any intervention in the logistic operations, changing transport or distribution or unit-selling packing, can play an important role, either by cost reduction, or fewer packing materials injected into market and distribution networks, thus lesser mandatory contributions for *Ponto Verde*.

9.4.7 Reengineering of packing levels

Taking present the three packing levels described above, it looks very unlikely to the company to intervene deep at 3rd level (transport or distribution unit) due to two kinds of reasons:

1) Shelf replacement and warehousing requisites from main distribution chains of hyper and supermarkets;

2) Transport and handling of 3rd level packs, once they are built around international standard pallets (euro pallet[43]) and are fully suited for lorry transport and mechanic stacker handling.

However, there are some opportunities for 1st level (selling unit) and 2nd level packing (grouped pack). It is very likely (with a little help from marketing communication specialists) to swap the traditional carton box with 10 capsules for biodegradable plastic packing (1st level packing or selling unit). Of course this change should take into account:

[42] Sociedade Ponto Verde website: http://www.pontoverde.pt/empresas/embalagens, 15-07-2010.

[43] Euro Pallet – 80 cm X 120 cm standard pallet is the most common merchandise handling pallet in Europe. EPAL - European Pallet Association, http://www.epal-pallets.de/uk/ueber_uns/kurzportrait.php, 24-02-2011.

1) The investment costs and payback period for the plastic packaging machine;

2) The "super attractive" design and carefully choice of the pack colours scheme;

3) Effective communication campaign to present the new packing not only as "new", but mainly as a environment-friendly packing, since it is biodegradable.

This three step plan could very easily become a source of important marketing differentiation for Delta Q, as well as of added value proposition for end-customers, because plastic (even the biodegradable ones) tend to be cheaper than carton boxes.

Furthermore, at 2nd level packing (grouped pack) biodegradable plastic could be introduced. This swap doesn't need to be mass communicated. Instead it just needs to be well explained and presented to channel partners, using the same argumentation used for end-customers market. At this level, the only main preoccupation for packing reengineering is the necessary resistance of the biodegradable film for adequate transport of 50 packs of 10 capsule-bags.

9.5 Pricing assessment

DELTA assumes social responsibility programs and environmental protection investments under the most restrict and traditional concepts of corporate responsibility as discussed above on chapter 6.1 regarding the philanthropic obligations of companies, to give back to society, whom (somehow) contributed for company goal achievement (Carrol, 1999).

Thus DELTA internalizes the costs of all programs and investments related to social and environmental efforts. Whole improvements, certifications, international programs and involvement with community or ecological issues, are funded by the company, depleting the operational profits. Of course this is only possible due to family type organization and effective shareholding of DELTA group.

The Delta Q pricing is based on the sum of costs (including green coffee imports and industrial toasting and milling), packaging, marketing and distribution. In balance with net profit contribution goals for the brand, distribution costs and shelve investments, are kept within the boundaries of the marketing leader pricing.

Like any other FMCG product present in the hyper and supermarkets distribution networks, Delta Q is periodically stimulated with price lowering or quantity campaigns, resulting much more from store networks pressure, than from product marketing strategy or demand side pressures.

In consequence, no social or environmental challenges are reflected in pricing. This is in accordance with the absence of green or community involvement product (or brand) communication, and leaves not enough space maneuvering for an environmental pricing process. Due to Delta Q's own birth process (by demand pressure) in addition to the elected strategic marketing positioning as a "follower", pricing strategies redound immediately in closed set of options. No accounting processes were developed in order to internalize and transfer eco-costs, or to fund the multiple projects, programs and investments held by the company in relation to environmental protection, waste management or social responsibility. Thus, also in pricing, Delta Q must follow the product category leader and restraint its aims, to practice some price.

Again, the lack of open publicity on relevant and wide ecological and social achievements by DELTA, obliterate important (and deserved) marketing positioning and strategies options. Efforts being made regarding raising awareness of end-customers for the need of used capsule recycling, could benefit a lot if marketing management could encourage customers to keep and deposit capsules on the collection spots, with some money prize. Of course this kind of strategy would need the support of really effective special communication and "green" premium price, to allow giving some money back to the customer.

Although this is a bit risky strategy, since it leaves room for the competition price increases without any significant effort to justify it. Clear communication of campaign objectives and effective implementation of a simple money prize procedure, could easily obviate the risk. According to Kotler and Keller (2005) many empiric experiences result on unexpected end-customer positive price elasticity, and do not drive to market-share loss, when a proper price strategy is set in place.

Moreover, reducing ecological foot-print could very well be a perfect justification to limit price conditions for distribution networks or to pitch a quantity campaign, in order to reduce the number of lorry deliveries.

9.6 Distribution channels assessment

9.6.1 Boundaries imposed to Delta Q production and selling systems due distribution channels requisites

The boundaries Delta Q faces to coffee business development emerging from the marketing and distribution channels system are not specifically different from other industries. In fact, coffee industry is probably one of the most eco-efficient businesses regarding distribution network constraints.

Portuguese distribution networks, along with other southern Europe counterparts are very robust and mature (Rousseau, 1997). From their stand, it is very efficiently organized under a concept pre environmental concerns and reverse logistics, of "one-way" mass distribution. They are near-optimal efficient regarding goods inbound and reception, shelf replenishment (mostly assured by brands' employees) and managing providers for long account payment periods. Within these approach goods handling and easy packs stocking became critical to end quickly the distribution operations cycle. Thus all packing requisites mentioned above, mainly 2nd and 3rd level packing, were developed taking more

into regard physical distribution operations, than cost efficiency, or environmental performance.

However, under sustainable marketing framework approach, some intervention opportunities arise. Distribution operation systems reengineering with the environmental commitment is possible, at a very low cost or even, with important savings. These could be undertaken by two tools from the framework, which are rethinking product as services and reverse logistics development. The 3rd level packing (transport unit) could be changed for reusable containers with same dimensions and capacity. 2nd level packing (distribution packing) could also suffer changes or even be eliminated if accompanied with an efficient store replenishment software, linking the supermarket store with DELTA plant. This would allow the implementation of a JIT[44] production, storing and distribution philosophy, which is widely grounded and firmly proved.

With this approach, reverse logistics implementation can be leveraged, once it would allow the back transport of collected used capsules with dreg, but also to collect back to sales departments warehouses and plant, the transport and distribution packs for refilling.

9.6.2 Energy and pollution intensity from raw and subsidiary material transportation to plant

Due to Delta Q plant location at *Campo Maior*, the company faces important inbound costs regarding green coffee and subsidiary material. Moreover, Portuguese distribution logistics is organized under a road transportation concept, which very much limits company's distribution system options.

This is a major problem not only for Portuguese business companies, but also for country economy, since over dependency on lorry handling of goods accounts for an important

[44] JIT stands for just in time logistics management approach.

quota of oil imports and carbon emissions. This is also the main reason for the intense ecological footprint that characterizes the vast majority of Portuguese industry sector.

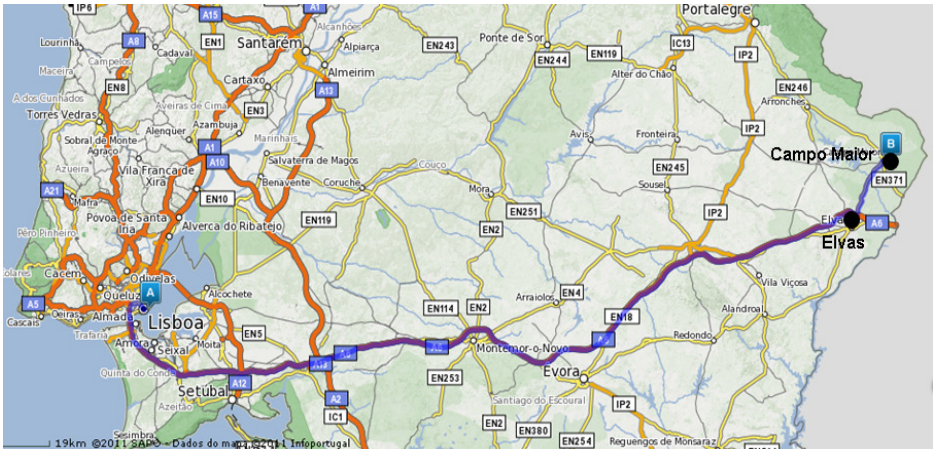
DELTA is aware of this reality and with the extreme environmental concern, was decisive on leading a wide interest group to set up a container platform at the nearby city of *Elvas* (17 kms from *Campo Maior*).

As a result the daily Lorries come-and-go between Lisbon and DELTA's plant ceased, and was substituted by two merchandise trains a day.

This shift represents a substantial improvement towards reducing carbon (and by the way, fuel energy consumption) footprint, by saving 226 kms lorry trip several times a day.

Following is a map which shows the distance between Lisbon and *Campo Maior*, once covered daily by lorry and now substituted by merchandise trains:

Figure 9.9 - Green coffee transport to plant



9.6.3 Energy consumption due to distribution channels

As already explained, Portuguese logistics are based on road transportation. Most of the times is not an option for a company to consider other transport and delivery systems. Since Delta Q is an FMCG[45] product and due to the capillarity of the marketing channels, who impose a wide point-of-sale presence in order to maximize product rotation and

[45] FMCG stands for fast moving consumer goods.

achieve increased sales (Marketing Channels, 2007), there is (so far) no other options available to delivery systems but lorry transportation between plant and distribution centres (both from DELTA and hyper and supermarkets chains). The distribution to stores is made by smaller vans.

This rationalized distribution architecture allowed DELTA to manage outbound logistics in a cost-effective manner and lower, as far as it is operational and economical viable, the pollution associated with marketing and distribution function.

Another theoretical distribution and delivery of goods systems to end-customers like postal delivery need further consumer awareness and major changes in buying behaviour, besides the highly direct costs associated, that are out of reach of DELTA's marketing efforts by itself.

Alternative transport systems between plant and DELTA's sales-departments warehouses, like the railway, are only partially possible for some of them. The lack of global reengineering of distribution logistics on these terms, due to the excessive cost and coexistence of several distribution systems at the same time, make it organizational and economicaly unviable.

The use of electric powered distribution vehicles isn't so far of practical implementation but state of the art EPV[46] lack of operational autonomy and price lowering due to the absence of mass marketing.

In conclusion, the company as a whole and Delta Q distribution operations, are highly energy consuming (and an important pollution source) due to Portuguese transportation infrastructures and consumer demands and behaviour.

[46] EPV stands for electrical powered vehicle.

9.6.4 Waste production due to distribution channels

Distribution channel waste production relates mainly to 2nd and 3rd levels packing (grouping and transport) that becomes rubbish after each of the distribution stages and before final product consumption. For the purposes of waste production analysis, distribution channels must be divided into two major segments: hyper and supermarkets on one side and professional and domestic end-customer, on the other.

In the case of the hyper and supermarkets related channels, transport and grouping packs consist essentially of pallets, retractile-plastic and large carton boxes, which fulfil their purpose at this stage and become rubbish.

Fortunately, in Portugal, this waste category is largely recovered since early launching of *Ponto Verde* system, which assures the collection and further recycling for pallets, retractile-plastics and carton boxes. Of course not all the wastes produced enter the waste recycle chain, which poses a problem due to many little bits of uncollected scrap from each warehouse or supermarket facility. It is one of the inefficiencies of the systems that demand further improvement.

Regarding the professional and domestic end-customer distribution segments, it is where the waste generation mostly occurs due to product consumption. First stage, at home or offices correspond to 10 capsules carton-box disposal. The second stage corresponds to capsule and dreg disposal.

Although most of the country's cities are already covered with a selected domestic waste collection system, which allows families to separate it into three groups: carton and paper, metallic and plastic, and glass, the collection systems do not cover all urban and industrial/commercial areas. Thereby the capsules with dreg from Delta Q do not fit any of the above mentioned groups, once they are made of plastic, aluminium film and

contain dreg, which invalidate its collection for plastic recovery, and drives used capsules to terminal disposal at landfills.

This was the main reason for DELTA to launching the Rethink-Eco-Project program, due to lack of adequate treatment of used capsules by municipality's waste collection systems (both with a selective collection and undifferentiated collection).

9.6.5 Workforce training on environmental issues

DELTA employees do not receive special environmental training. However, their comprehensive welcome process and corporate training programs cover deeply all the issues that the company is involved with, like sustainable coffee origins, Fair Trade, eco-efficiency, Rethink-Eco-Project program among all the other already listed (see chapter 9.2.7).

9.6.6 Sustainability criteria for partners and providers selection

Regarding green coffee, the company is deeply committed with environmental and social responsibility issues, like training farmer communities, child education and health and safety life conditions.

In what refers to the subsidiary materials and other inbounds necessary for product process and packing, there are essentially requisites defined by environmental company's own goals. This is justified for two orders of reasons. First, for some critical inputs like natural gas, there are no alternative providers in the Portuguese market. Second, for the remaining inputs where selection is possible, the choice is made on the pre-requisites of the item being purchased, and not on the environmental performance of the company that produces or sells it, as it is the case of the capsule's polymer, which the absolute initial

pre-requisite was the recyclability, and so it became a basic specification for the project's provider selection.

9.6.7 Reverse logistics as a cost or profit centre

Reverse logistics are a fact since the Rethink project launch. In the first stage it covered the back circuit from company's sales departments, where initial Delta Q capsule's collection baskets were placed. It later has widened to cover also professional end-customer segment, assured by company's own distribution systems. At a second stage, with protocol establishment with hyper and supermarkets distribution chains, was possible to grow dramatically the number of capsules and dreg collected by reverse logistics for recovery.

So far, reverse logistics is a cost centre, totally funded by company, degrading industrial and trade margins. However, Rethink project development is expected to reverse this reality, since the high potential value laid on dreg reuse, and recycling of polymer capsules into new coffee machine manufacturing.

9.7 Promotion and communication assessment

9.7.1 Delta Q's environmental and sustainable communication

Delta Q by itself has no special ecosystem or sustainable characteristics that can be used to project and/or communicate the company's commitment to ecosystems stewardship and social responsibility. What makes Delta Q a more ecological friendly product is the processes the company deployed from coffee business upstream trough downstream to end-user markets, regarding social responsibility and environmental commitment. For this reason, the coffee capsule recyclability was a pre-requisite for Delta Q's project.

More recently, Rethink-Eco-Project was launched to find and develop economical viable processes to collect used capsules and to add significant value to the coffee grounds.

DELTA does not use any of these important projects and abilities to communicate and advertise Delta Q. In fact, regarding mass market communication, the company has assumed a follower strategy based on irreverence, due to lesser communication budget. This is the opposite strategy from the main competitor, who massively invests in media, aligned with worldwide company's global communication campaigns.

Delta Q's communication efforts regarding initiatives related to reducing the brand ecological footprint, are still focused on interviews and magazine reports, and some press releases when Rethink-Eco-Project was launched.

The same approach applies to the numerous company social initiatives, which receive only local media coverage or specialized media, losing opportunity to leverage company and brands awareness trough wide media coverage of brand's environmental friendly features and special community and researching projects associated.

The absence of larger marketing and communication budgets looks to have inhibited DELTA of fully projecting its social and sustainability projects' trough the means of mass communication, and making poor use of bellow the line communication strategies. Here is a wide landscape of innovation and opportunity to be explored and enhanced.

9.7.2 DELTA historical commitment with environment and CSR

DELTA's history and its early involvement and commitment to the community and environmental issues, provided the first social certification for the industry in Portugal, is probably the best history possible to project a corporate, responsible and ecological "*de facto*" image and able to build an important marketing differentiation advantage, as presented above (see chapter 8 – DELTA Cafés).

However, the company does not take advantage of this so rich history in their current marketing communication. All efforts to project to markets company's deep involvement in social and sustainable projects are developed under the form of press conferences, press releases and company owned communication channels like the websites and the DELTA Magazine, with limited audience and poor notoriety leveraging.

There are plenty of opportunities to power up the whole company's projects and achievements regarding social responsibility and environment protection, with minor investment costs and just by adding current communication and advertising campaigns with already done or in progress projects.

Capsule recyclability and spots to used capsule collection, or the deep involvement with farmer communities with sustainability in the origins program, allow to achieve a "green" awareness and to differentiate Delta Q on customer mind, providing them with important means for buying behaviour and decision reference modification, in favour of the brand.

9.7.3 Environmental certification and labeling

Regarding the labeling issue, a dual situation emerges, taking into account Delta Q and the remaining coffee brands. On one side, there is some sort of company's environmental and social commitment statement on the back of coffee packs, pursuant to type II labeling step emerging from ISO 14001 series certification (Hortensius and Barthel, 1997)[47]. Although that labeling none of them, clearly evidence the social or environmental certifications achieved by DELTA. On the other side Delta Q packs completely omits whole company involvement and commitment to sustainability and social responsibility issues.

[47] In Sheldon, Christopher (1997), ISO 14001 and beyond: Environmental management Systems in the real world, Greenleaf Publishing, Sheffield, UK.

Once again, important marketing differentiation and advantages strategies are being miss-used or poorly leveraged. On the traditional product lines (both for professional and end-user markets), DELTA packaging communication strategy lacks to tell the market the proud involvement of the company with actively promotion of coffee origins sustainability, fair price trade, and social enhancement of local farmers education and living conditions. The sustainable development statement printed on coffee packs back, is too long to provoke brain-impact memorization, and risks being miss-understood, due to the logotype not belonging to any national or international certification organization. This option constitutes a missing opportunity since DELTA has a social and environmental certification and has successfully implemented EMAS audit systems.

Those awards and management systems should be shared with the whole end-customers.

Delta Q packing faces several restrictions due to target end-market and tight image following strategy with main international competition. However, there is no risk for any brand damage, by associating Delta Q brand with social or environmental certification marks. Most of the end-markets companies which started to print these certifications in their product packs faced an overall awareness increase and, many times, also sales growth (Ackerstein and Lemon, 1999; Rios, Martínez, Moreno and Soriano, 2006; Shen and Chang, 2009).

Moreover, according to Carolina Afonso (2009), there is a growing number of the so-called green consumers with a very well established psychographic profile, like higher grade education and above average income. These consumers present a high rate conversion between green-products buying intention and effective buying (even in the Portuguese contracted market). Thus, it seems that important consumer trends are being disregarded, what can cause future problems by later communication with those end-markets.

9.7.4 DELTA's marketing channel communication on environmental and social commitment

The company is developing a bold and important effort to gather supporters and effective partners for its programs and initiatives, both throughout supply chain and distribution networks. DELTA's Rethink-Eco-Project involves directly the hyper and supermarkets networks once they constitute central crossing hotspots for customers with high accessibility, both for buying processes and for used capsule collection.

Furthermore, distribution and logistics personnel are deep involved with these efforts in order to motivate and widespread the need and easiness of the environmental protection trough behavioural enhancement and habits change towards waste valorization and value harnessing from capsules collection and coffee grounds recycling.

From supply side, there is also important care to find and trade with coffee providers deep involved with environmental and social issues. This is an outcome from sustainability at the origins program. Not forgetting the Shadow and Rainforest Alliance blends.

Remaining suppliers are taught about company social and environmental commitments by traditional communication channels like the media, press release, DELTA's specific website for sustainability and by DELTA's magazine.

9.7.5 Top management involvement regarding social and environmental communication

Company top management presents a full breath commitment and involvement with social and environmental responsibility, assuming the role of the main projects and programs drivers. This involvement can be seen in two complementary dimensions: the governance level and trough public/media involvement.

Regarding the first dimension, since recent years, is widely accepted the positive and determinant impact of CEO[48] commitment for CSR and environmental projects implementation and success. DELTA top management is deeply embodied with the issues concerning sustainability. Beyond plain image and presence on events to support responsibility projects, also as a result from environmental and social certifications, was created a formal sustainability management system with a full time manager and an annual working plan and budgeting (see chapter 9.2.1 – Company Environmental Statement).

On the second dimension, DELTA's top management is regularly present and heads the public presentations[49] on social and environmental subjects. By media interviews, press conferences and issuing special reports on important milestones achieved[50], or by endorsing the academic researching projects[51].

9.7.6 Sales-force sustainability and social responsibility training

Social responsibility and environmental protection are covered by sales force training. However, it is not a special chapter of it but rather another component of the general sales force training programs, where the trainees become aware and familiar with the deep commitment of the company with social responsibility for local communities (both in Portugal and coffee sourcing countries), the programs and investments held for it, and what should be sales-representatives behaviour and speech accordingly.

[48] CEO stands for Chief Executive Officer.

[49] http://www.mydeltaq.com/Default.aspx?ID=569&Action=1&NewsId=67&PID=1394, 27/02/20011.

[50] http://imagensdemarca.sapo.pt/dossier/detalhes.php?id=496, 27/02/2011.

[51] http://www.portaldoestudante.uevora.pt/media/informacoes/premio_anual_ biodiversidade_delta_cafes_2010, 27/02/2011.

9.7.7 DELTA's environmental and sustainability advertising campaigns

The company does not communicate its deep involvement with environmental and sustainability in their media advertising campaigns. DELTA as a whole, including Delta Q is a poor media communication investor, and practices a following strategy from the main competitors. This becomes clear when Delta Q advertising used George Clooney's (worldwide Nespresso brand face) unknown girlfriend. Even taking into account the humorous feeling of the ad's storyboard it is still a follower's strategy.

DELTA's strategy miss-use the tremendous potential of marketing differentiation and advantages, that emerge from the communication of DELTA's deep commitment with social responsibility initiatives and environmental programs.

More and more consumers, in face of environmental problems and growing waste production, are increasing their buying intentions and effective buying of green-products (Carolina Afonso, 2009). Hence the lack of wide communication of DELTA's "green concerns", programs and investments, and moreover, the real achievements and improvements regarding environment and social responsibility, is itself a wasted opportunity. Not only for Delta Q awareness, but mainly a lost opportunity to raise environmental and sustainability awareness from DELTA's end-customers.

10 SUSTAINABLE MARKETING ASSESSMENT

In possession of the data gathered trough the interviews and content analysis in order to answer the issues raised from the sustainable marketing audit checklist, it is possible to draw an accurate product's profile regarding the overall pursued strategy, against P2 (pollution prevention) and R2 (resource recovery) basic goals.

As previously discussed, this profiling naturally results in a SWOT analysis, which presents the advantage of clearly listing the future strategies building blocks emerging from product's strengths in conjunction with product's opportunities.

Along the following SWOT analysis, several times will be referred "the company" instead of the product-specific being audited, once in those cases it is impossible to clearly, identify, the driver of the process (or procedure) being analysed from the product itself. On the other hand, because it makes no sense to discuss the specific toasting process of Delta Q, since this process is common for all brands and blends from the company.

10.1 Delta Q SWOT analysis resume

Table 10.1 – Delta Q's Sustainable marketing SWOT analysis

Strengths	Weaknesses
• High target-markets awareness. • High end-customers brand trust. • End-customers are loyal to brand. Both for brand trust and awareness, but also due to brand proprietary coffee-machine, since Delta Q capsules are fitted only for Delta Q coffee-machines. • High geographic coverage. • Delta Q fully embodies social responsibility (both corporate and employee levels), and act accordingly.	• Follower marketing strategy. • Poor overall communication investments. • Lack of communication/advertising on green issues like: certifications, social programs, environmental protection investments and sustainability initiatives. • Poor "bellow the line" communication. • Pricing process does not reflect environmental and social efforts. • Poor or unclear recyclability or

• The company holds strong social background, at national and international levels. • The company holds strong environmental commitment, at national and international levels. • The company holds strong involvement with Portuguese partners, both supply chain side and distribution networks side. • The company holds social certifications (international granted) beyond legal requisites. • The company holds environmental certifications (international granted) beyond legal requisites. • The company produces social and responsibility biannual report beyond legal requisites. • The company fully embodies environmental protection and acts accordingly. • Local partnerships with suppliers and providers. • R&D investment and partnerships • Rethink-Eco-Project: Used coffee capsules collection and recycling, plus dreg valorization.	terminal disposition of coffee machine. • The company still shows a high dependence on oil and derivatives for industrial processing and distribution logistics. Progressive shift for cleaner or/and renewable energy sources would improve cost structure and reduce exposition to the crude oil price increases. • Poor waste water treatment and reuse. • Poor carbon sequestration effectiveness.

• The company holds robust financial balance. • The company holds sound industry profitability.	
Opportunities	**Threats**
• Increasing demand for greener products as customer becomes more aware of environmental issues. • Packing levels (selling pack, distribution pack and transport pack) reengineering, with impact on cost structure and waste generation. • Deeper involvement of partners (both supply side and distribution networks side) in order to introduce (as possible) environmental and social responsibility partnership criteria. • Enhance alternative coffee machine utility. • Distribution reengineering trough less pollutant transport systems. • Take full advantage of green features (from both product and/or company) communication, like certifications granted and programs and projects developed or under development. • Reorienting marketing communication	• Strong international competition based on high brand awareness and recognition. • Increase in international prices for traditional fuels (oil and gas). • Subsidiary materials price rise. • Green coffee International price rise. • New DOB[52]'s capsulated coffee competition. • Strong technical barriers to change of the domestic coffee brand, which imply new coffee-machine acquisition. • Consumers are generally indifferent towards environmental and sustainability issues.

[52] DOB stands for distribution owned brand.

efforts from product to environmental protection and social responsibility of each person/organization and promoting behaviour change towards "greener" products and brands. • New pricing process reflecting new product positioning and justifying eventual "money prize". • Reward the customer environmental behaviour through money back for each capsule collected for further valorisation. • Poor decision and initiative freedom from the main competitors, once he's not able to customize both product and communication.	

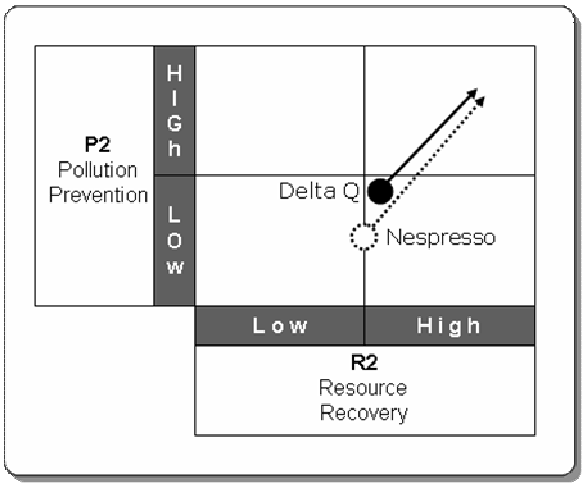
10.2 Delta Q positioning: P2/R2

Delta Q is a product-specific very aware of its ecosystem's impact and ecological responsibilities. The tradition and commitment to social and environmental issues patented by DELTA nurture a positive context to develop and launch responsible products. Delta Q holds some important ecological stress due to industrial processes and distribution, waste generation on production, distribution and consumption cycles, and issues associated with terminal disposal (both capsules and later coffee-machine). The way the management team addressed these challenges and developed projects to deal with negative impacts, provides a favourable product positioning regarding P2 (pollution prevention) and R2 (resource recovery) goals.

Despite those problems, Delta Q is clearly on the right sustainable path, and positions itself almost halfway to be a highly pollution preventer product, and just over a mid track towards resource recovery goals, as presented in the figure bellow.

In the same figure was also represented a tentative positioning of the main competitor for benchmarking purposes. The de deduction of Nespresso positioning against P2 and R2 goals was made upon the disclosed data on brand environmental involvement conveyed through press and from the product's website on the subject[53].

Figure 10.1 - Delta Q positioning to P2 and R2 goals



Regarding P2 goals, Delta Q shows an important environmental impact, especially trough energy consumption and waste generation along product's PSLC (Product-system -Life-cycle). On one side, there are the capsule related issues, like polymer production (from oil) and subsidiary materials for industrial processing and marketing (mainly packing scrap generation).

On the other side are the exclusive coffee-machine related issues like polymer production, restricted use of such a device (strictly for quality coffee domestic consumption), and terminal disposition of equipment. Although early pre-requisites for the product like

[53] http://www.ecolaboration.com/mediacenter/#/startpage/, January 2011.
http://www.ecolaboration.com/#/aaa/pt/, January 2011.
http://www.ecolaboration.com/#/aaa/en/factsheets, January 2011.
http://www.ecolaboration.com/#/aaa/en/questions-and-answers, January 2011.

capsule recyclability, the need to involve and actively commit the end-consumer and drive his consumption behaviour to change, in order to achieve environmental impact minimization for product life cycle, remains a long path to walk towards product sustainability. The absence of proper and efficient end-customer communication and adequate incentives to drive consumer decision models and consumption behaviour change makes P2 goals harder to achieve.

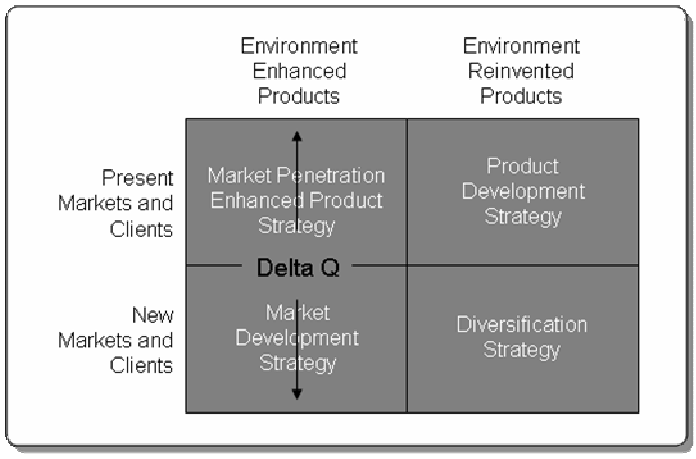
Delta Q patents a better positioning regarding R2 goals due to the company own environmental and social commitment and most innovative and comprehensive projects like Rethink-Eco-Project.

DELTA's efforts to reduce CO_2 emissions, to bring waste treatment to the level (already achieved) of zero toxic waste, and packaging waste generation close monitoring, provides product upwards improvement on the scale. Complementary, Rethink-Eco-Project objectives like old coffee machines and polymer capsules recycling for further incorporation in new capsules and coffee machines are also most relevant for R2 positioning. The early results about dreg valorization and capsules recycling contribute decisively to overcome half-scale R2 positioning.

10.3 Conclusions

Delta Q, due to P2 and R2 goals positioning and company's social and ecological responsibility, awareness and commitment, faces unique opportunities for marketing performance enhancement and sustainability development achievement. As a result, strategic options available are defined in the matrix bellow:

Figure 10.2 - Delta Q strategic environmental matrix positioning



Available strategies are framed by market penetration trough product strategy enhancement, or trough market development strategy, respectively for current target markets or new markets as is the case of Delta Q Spanish market penetration.

The relative worst P2 score is justified mainly by the necessity to involve end-customer towards decision-making models and consumption behaviour changing. To do so require a bold communication strategy shift and investment, which is a result of both previous matrixes cross analysis, market penetration and market development has much to do with broad brand communication and product development to become more environmental friendly.

In the case of abroad markets, proper communication strategy on the product ecological performance and responsible consumer behaviour, supported by early reverse logistics system implementation, could very well be the key for greater and sustainable success.

Once the core benefit of product cannot be changed, penetration and development strategies deal essentially with:

1) Minor incremental product fine-tuning to become lesser ecological harmful.

2) Development of broad end-consumer awareness and engagement on active behaviour changes to reduce waste disposal environmental impact. This is to participate actively in the recycling process.

These are R2 strategies, looking for comprehensive waste collection and increased recycling efficiency towards full waste recovery and re-injection onto the productive cycle. No matter if it is the coffee cycle or any other useful manufacturing, as long as it prevents used coffee capsules and dreg to end at the landfill, without further treatment or valorization.

Of course technology plays a major role to achieve R2 goals, since there are to be developed yet, economic and industrial viable solutions in order to treat and add more value to dreg. Rethink-Eco-Project is a very good example of the effort to be made and perhaps, sustained, in order to fully achieve P2 and R2 Goals.

11 RECOMMENDATIONS AND FURTHER RESEARCH

11.1 Business recommendations

Sustainable marketing audit, like common audits is a tool for management to make better decisions by identifying under performing areas or processes, by benchmarking, or simply by questioning and stimulating managers to do some serious critical thinking about their areas or processes of responsibility.

Present audit was developed on a brand from a group with utmost awareness and commitment with social responsibility and environment protection towards sustainability. However, some of the marketing mix variables are being poorly managed in face of the important DELTA's social and ecological achievements perfectly aligned with P2 and R2 basic goals. To correctly implement a comprehensive sustainable marketing strategy and take full advantage of the achievements already made by DELTA, would be advisable to implement the following measures, to be understand as a road-map, since it would require more in-depth financial and marketing analysis:

1) *Target market segment assessment* – As much as a company feel safe and grounded on demand pressure from "loyal" end-customers to launch a new product, or significantly modify an existing one it is sound advised to perform a deep marketing research. Present marketing research methods are far less expensive than they used to be and provide a wide, reach and reliable knowledge on the marketing or management problem under investigation. It reduces uncertainty dramatically, regarding the planned investments.

   This rational also applies for an already marketed product, since it provides insights on end-customers behaviour and decision models, consumption drivers and motivations, estimates market size, delimits price flotation band, preferred packing, selling unit dimension regarding consumer and distribution preferences and requisites, among many other critical insights to make strategic marketing decisions more as conscientious options than guessing art or empirical experiments.

2) *Pricing* – Absence of a proper market study for Delta Q makes it impossible to have a proxy to test market price elasticity, and further establish a comprehensive pricing process. However, it seems to be very difficult to internalize eco-costs (or part of them) from coffee production cycle.

   Nevertheless, recent academic research and empiric evidence points towards some end-consumers willing to support a price increase for well perceived environmental product benefits, especially the growing green end-consumers niches (Ottman, 1992 and Catarina Afonso, 2009).

   To be successful in such an endeavour, distribution channels networks and sales-teams must be totally involved in order to pitch correctly the price modifications and fighting the hyper and supermarkets trend to transpose price increases to end-

consumers, gaining better trade margins for themselves. Properly budgeted, planned and communicated, such strategy presents every property to be well succeeded, on trade margin creation, to reward the end-consumer behaviour change towards an increasingly active role on collecting and depositing used capsules into collection spots.

3) *Communication* – Delta Q brand is making a very poor use of this strategic marketing variable, by two sorts of reasons. On one side the assumed following strategy presents very little chances of achieving any significant return on communication investment made, no matter how small it may be. Sustainable marketing is also an intrinsic combat against every kind of resource waste, never minding if they are from the environment or from the company's marketing budget. Even small resources could be more effectively spent on other most important communication objectives, like raising end-consumer awareness for ecological behaviour and waste avoidance.

   On another side, the brand is forgetting the whole public recognised company's commitment and achievements regarding social responsibility, absolute innovative programs and ecological investments with government funded research program and international social and environmental certifications granted.

   The first and urgent step is to stamp on Delta Q packs, the granted certifications logos, regarding those issues, in a phased and planned manner.

11.2 Discussion, limitations and further research

The present work is an exploratory research on Donald A. Fuller seminal work, which has resulted in the sustainable marketing framework. As far as it is possible to know, it is the

first attempt to operationalize the approach and to take advantage of the model to envision a comprehensive sustainable marketing strategy for a product-specific already being marketed, the capsulated coffee brand Delta Q.

The framework proved to be suitable for practical enforcement and to stimulate management and marketers to think out of the box, questioning new processes, systems and other dimensions of the product's industrial and marketing dimensions. The waste management approach trough the product-system life-cycle assessment brought into perspective a whole further comprehensive array of issues previously unexplored.

Moreover, bi-dimensional matrix positioning of Delta Q regarding P2 and R2 Goals, developed along research a clear perspective on what remains to be done regarding product and attached equipments, to implement an effective sustainable marketing strategy and to achieve diminished environmental impact.

Another area where the framework came to be unexpectedly effective was communication. Sustainable marketing framework provides a comprehensive set of tools to assess effectively every dimension of marketing management decisions and processes. By questioning and investigating the company's social and environmental achievement's projection on end-markets was possible to identify an area of poor company and brand performance, in face of what are the real company's commitments and achievements regarding environmental responsibility (P2 and R2 goals) towards sustainability.

Therefore, the company is missing excellent awareness growth and marketing differentiation opportunities. Especially if one takes into account the most recent research and available indicators on "green consumerism" due to growing end-customers awareness for environmental issues, although often not being clear what are the behaviour models and decision drivers for environment-friendly products purchasing.

Sustainable marketing audit also proved to be a more valuable tool for company/brand performance assessment and strategy building than the green model. According to Ottman

(2006) the green marketing approach has been many times unsuccessful due to lack of end-customer insight on decision models, behaviour drivers and motivations. Therefore, it becomes useless to invest in campaigns and communication strategies outside of end-consumer concerns and awareness.

Other times green marketing has suffered with poor product performance against P2 and R2 goals or lack of effective environmental features, what makes the task virtually impossible. One should not conclude from above exposition, on green marketing inadequacy or lack of effectiveness. Contrariwise green marketing approach is very powerful for successful communication if product beholds true environmental enhancement or feature benefit that the end-customer value and apprehends.

Sustainable marketing as a comprehensive framework widely overcomes the narrow company-market communication perspective and goes further on questioning and detailing the product processes from top to bottom. It goes deep in product design, brand management terminal disposal or/and waste reinjection on the upstream of PSLC. It also covers the supply chain side by investigating company's distribution channels, pricing process (including environmental cost internalization), communication strategy and end markets assessment.

Above all it is a strategic framework model with integrated operative tools, which provides a coherent approach for marketing management processes, under a new paradigm approach.

Moreover, sustainable marketing offers the tools to assess critically the product's performance and company's profitability contribution, and to generate alternate processes (no matter if productive, transport, pricing, communication or packaging related) towards enhanced ecological stewardship and cost effectiveness.

Those are the main benefits of a comprehensive approach to the issues emerging from social and environmental responsible management for the future. Sustainable marketing

does not break with traditional marketing management theory, instead offers to conscious and pro marketers an important steps forward, by providing a systemic reference model that evaluates every marketing (and management in general) decision against its impact on environment.

Of course, as a recent marketing science development, sustainable marketing needs to be further tested against more companies and different products, not forgetting the industrial markets. Above all this new approach deserves a full comprehensive testing, from foundation theory to whole model's operationalization.

Once accomplished the diagnostic task and the product positioning against P2 and R2 goals emerges the array of strategic options available. Following, trough the environmental dimension added to Ansoff's product/market matrix and the SWOT analysis, the logic next step is to build a full sustainable marketing strategy within new social and environment boundaries.

A bolder ambition would be then, to develop a full sustainable marketing strategy implementation and monitoring, for necessary corrections and fine tuning. Such a endeavour could be set in motion trough an action-research project for two main reasons:

1) Due to sustainable marketing framework novelty, it should be developed with a project-team, to allow multiple theory interpretations, and to stimulate creativity;

2) Since it is to be implemented, it necessarily demands an empowered management team to be able to take decisions and to assure they are fulfilled by the company's structure.

As a preliminary, qualitative and descriptive study, the research lacks of reliability due to the absence of statistical validity. So, further research on the sustainable marketing framework should be conduced onto other products, markets and industries. However, management problems could be similar, each product, market and industry presents their own specificities against whom the framework should be tested.

Another area where further empiric research would be desirable relates with the internalization of the eco-costs of Delta Q in the pricing process. Such project would require intensive cost mapping and evaluating, and a full commitment of the marketing communication team, whom main concern should be the design of an adequate communication program, for target-markets, distribution partners and Delta Q's sales-force.

12 ATTACHMENTS

12.1 Delta accounting and financial table: 2003 to 2006

	2003	2004	2005	2006
Number of Emplyees	1.254	1.272	1.399	1.507
		1,44%	9,98%	7,72%
Sales & Services	162.643.592,00 €	175.047.919,00 €	189.557.341,00 €	206.591.867,00 €
Cost of Sales & Services	47.901.758,00 €	49.030.255,00 €	54.524.607,00 €	73.514.079,00 €
Operational Income	163.116.368,00 €	177.954.924,00 €	19.420.108,00 €	217.272.932,00 €
Operational Costs	133.819.914,00 €	143.668.392,00 €	162.059.702,00 €	199.091.849,00 €
Gross Margin	114.741.834,00 €	126.017.664,00 €	135.032.734,00 €	133.077.788,00 €
Operational Profit	29.296.455,00 €	34.286.531,00 €	32.140.406,00 €	18.181.093,00 €
Profit befores Taxes	24.415.969,00 €	32.255.770,00 €	30.333.354,00 €	16.272.990,00 €
Taxes	8.761.899,00 €	9.292.573,00 €	8.572.709,00 €	5.481.324,00 €
Net Profit	15.654.070,00 €	22.963.197,00 €	21.760.645,00 €	10.791.666,00 €
Net Assets	154.282.631,00 €	173.844.141,00 €	202.492.520,00 €	221.161.603,00 €
Current Assets				148.034.457,00 €
Current Liabilities				125.158.394,00 €
Equity	80.426.843,00 €	93.978.763,00 €	84.067.756,00 €	90.864.864,00 €
Cash Flow	31.675.802,00 €	39.688.406,00 €	41.713.371,00 €	45.896.833,00 €
Gross Sales Profitability	70,50%	71,99%	71,29%	64,42%
Net Sales Profitability	9,62%	13,12%	11,48%	5,22%
Equity Profitability	19,50%	24,40%	25,88%	11,88%
Return on Assets	10,02%	13,20%	10,75%	4,88%
Financial Autonomy	52,30%	54,10%	41,52%	41,09%
General Liquidity	135,70%	152,70%	80,63%	118,28%
EBITDA(Operational Cash Flow)	45.318.187,00 €	51.011.740,00 €	52.093.131,00 €	44.157.229,00 €

12.2 Delta accounting and financial table: 2007 to 2009

	2007	2008	2009
Number of Emplyees	1.671	1.704	1.746
	10,88%	1,97%	2,46%
Sales & Services	236.488.302,00 €	258.418.368,00 €	270.100.792,00 €
Cost of Sales & Services	80.607.206,00 €	87.278.297,00 €	93.204.901,00 €
Operational Income	241.403.871,00 €	264.734.323,00 €	282.136.059,00 €
Operational Costs	221.996.562,00 €	241.472.155,00 €	256.783.990,00 €
Gross Margin	155.881.096,00 €	171.140.071,00 €	176.895.891,00 €
Operational Profit	19.407.309,00 €	23.262.168,00 €	25.352.070,00 €
Profit befores Taxes	12.520.905,00 €	18.111.173,00 €	20.743.690,00 €
Taxes	3.675.701,00 €	5.548.065,00 €	6.942.861,00 €
Net Profit	8.845.204,00 €	12.563.108,00 €	13.800.829,00 €
Net Assets	246.406.082,00 €	260.820.089,00 €	241.151.156,00 €
Current Assets	169.151.381,00 €	179.738.513,00 €	160.189.611,00 €
Current Liabilities	135.164.099,00 €	142.007.812,00 €	116.677.531,00 €
Equity	104.662.531,00 €	113.876.653,00 €	119.737.876,00 €
Cash Flow	47.067.636,00 €	39.138.691,00 €	39.418.426,00 €
Gross Sales Profitability	65,91%	66,23%	65,49%
Net Sales Profitability	3,74%	4,86%	5,11%
Equity Profitability	8,45%	11,03%	11,53%
Return on Assets	3,59%	4,82%	5,72%
Financial Autonomy	42,48%	43,66%	49,65%
General Liquidity	125,15%	85,75%	92,91%
EBITDA(Operational Cash Flow)	43.861.453,00 €	49.837.751,00 €	50.969.867,00 €

12.3 Delta ratios and indicators: 2003 to 2006

Million Euro	**1.000.000,00**			
	2003	**2004**	**2005**	**2006**
Cash Flow	31,68	39,69	41,71	45,90
EBITDA	45,32	51,01	52,09	44,16

	2003	2004	2005	2006
Gross Sales Profitability	70,50%	71,99%	71,29%	64,42%
Net Sales Profitability	9,62%	13,12%	11,48%	5,22%

	2003	2004	2005	2006
Return on Equity	19,50%	24,40%	25,88%	11,88%
Return on Assets	10,02%	13,20%	10,75%	4,88%

	2003	2004	2005	2006
Financial Autonomy	52,30%	54,10%	41,52%	41,09%
General Liquidity	135,70%	152,70%	80,63%	118,28%

	2003	2004	2005	2006
Business Volume by Employee	129.700	137.616	135.495	137.088
Net profit by Employee	12.483	18.053	15.554	7.161

	2003	2004	2005	2006
Business Volume	162,64	175,05	189,56	206,59
		7,63%	8,29%	8,99%

	2003	2004	2005	2006
Number of Employees	1.254	1.272	1.399	1.507

Thousand Euro	**1000**			
	2003	2004	2005	2006
Business Volume by Employee	129,70	137,62	135,49	137,09
Net Profit by Employee	12,48	18,05	15,55	7,16

12.4 Delta ratios and indicators: 2007 to 2009

Million Euro

	2007	2008	2009
Cash Flow	47,07	39,14	39,42
EBITDA	43,86	49,84	50,97

	2007	2008	2009
Gross Sales Profitability	65,91%	66,23%	65,49%
Net Sales Profitability	3,74%	4,86%	5,11%

	2007	2008	2009
Return on Equity	8,45%	11,03%	11,53%
Return on Assets	3,59%	4,82%	5,72%

	2007	2008	2009
Financial Autonomy	42,48%	43,66%	49,65%
General Liquidity	125,15%	85,75%	92,91%

	2007	2008	2009
Business Volume by Employee	141.525	151.654	154.697
Net profit by Employee	5.293	7.373	7.904

	2007	2008	2009
Business Volume	236,49	258,42	270,10
	14,47%	9,27%	4,52%
			0,66

	2007	2008	2009
Number of Employees	1.671	1.704	1.746

Thousand Euro

	2007	2008	2009
Business Volume by Employee	141,53	151,65	154,70
Net Profit by Employee	5,29	7,37	7,90

12.5 Delta environmental management system indicators

Energy profile

	2006	2007	2008	2009
Gasoline	N/A	1%	N/A	1%
Diesel	N/A	35%	N/A	31%
Natural Gas	N/A	29%	N/A	32%
Electricity	N/A	35%	N/A	36%
		100%		**100%**

Energy Consumption

	2006	2007	2008	2009
TOE	N/A	6.739	4.452	4.501

TOE/Ton Coffee (sales)

	2006	2007	2008	2009
TOE/Coffee Ton	N/A	0,22	0,21	0,20

CO2 Emissions

	2006	2007	2008	2009
CO2	N/A	12.046	11.862	11.858

CO2/Ton Coffee (Sales)

	2006	2007	2008	2009
CO2/CoffeeTon	N/A	0,53	0,55	0,54

Waste Production (Tons)

	2006	2007	2008	2009
Coffee Bags	296	261	244	279
Composite Packs	112	135	137	152
Plastic Packs	72	42	65	90
Paper/Carton	332	276	350	379
Others	292	240	316	320

Water Consumption

	2006	2007	2008	2009
m3	48374	46956	45381	49075

Waste terminal deposition (Tons)

	2006	2007	2008	2009
Value Addedd	N/A	78%	80%	83%
Terminal Disposal	N/A	22%	20%	17%
		100%	**100%**	**100%**

13 LIST OF ACRONYMS

APA	Portuguese Environmental Agency
CEO	Chief Executive Officer
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CSR	Corporate Social Responsibility
DFE	Design For Environment
DOB	Distribution Owned Brand
EBITDA	Earnings Before Interests, Taxes, Depreciation and Amortizations
EC	European Commission
ECB	European Central Bank
Eco	Short term for Ecological
ENDS	Portuguese Republic National Sustainable Development Strategy
EPA	United States of America Environmental Protection Agency
EPV	Electrical Powered Vehicle
EU	European Union
FMCG	Fast Moving Consumer Goods
GDP	Gross Domestic Product
JIT	Just In Time
LCA	Life-Cycle Analysis
NGO	Non-Governmental Organization
P2	Pollution Prevention
PET	Polyethylene Terephthalate
PSLC	Product- System Life-Cycle
QREN	National Strategic Reference Framework
R&D	Research and Development
R2	Resource Recovery
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
TOE	Tonnes of Oil Equivalent
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
USD	United States Dollar
WB	World Bank
WFP	World Food Programme of UN
WHO	World Health Organization

14 REFERENCES

1. Ackerstein, Daniel S. and Lemon, Katherine A. (1999), Greener Marketing, edited by Charter, Martin and Polonsky, Michael J. (1999), Greener Marketing: A global perspective on greening marketing practice, Greenleaf Publishing Limited, Shefield, UK

2. Afonso, A. Carolina (2009), O Consumidor Verde: Perfil e comportamento de compra, Marketing Master Thesis from Instituto Superior de Economia e Gestão of Universidade técnica de Lisboa, Lisbon, Portugal.

3. Anne T. Coughlan, Erin Andersen, Louis W. Stern and Adel I. El-Ansary (2001) Marketing Channels, 6th Edition, Prentice Hall Inc., Upper Saddle River, New Jersey, USA.

4. Ansoff, Igor (1957), Strategies for diversification, Harvard Business Review, Sep./Oct., pg. 114.

5. Aupperle, Kenneth E., Carroll, Archie B. and Hatfield, John D. (1985), An Empirical Examination of the Relationship between Corporate Social Responsibility and Profitability, The Academy of Management Journal, Vol. 28, No. 2, pp. 446-463.

6. Bell, Simon and Morse, Stephen (2008), Sustainability Indicators: Measuring the Immeasurable?, 2nd Edition, Reprinted 2010, Earthscan, Dunstan House, London, UK.

7. Bennett, Martin and James, Peter (1999), Sustainable Measures – Evaluation and Reporting of Environmental and Social Reporting, Greenleaf Publishing Limited, Sheffield, UK.

8. Berry, Leonard L., Conant, Jeffrey S. and Parasuraman, A. (1991), A framework for conducting a services marketing audit, Journal of the Academy of Marketing Science; 19, 3; pp. 255-268.

9. Blackburn, Simon (1997), Dicionário de Filosofia, Gradiva - Pubicações Lda., Lisboa, Portugal.

10. Blengini, Andrea Gian (2007), Aplying LCA to organic waste management in Piedmont, Italy, Management of Environmental Quality: An international Journal, Vol. 19, No. 5, 2008, pg 533.

11. Bowen, Howard R. (1953), Social Responsibilities of the Businessman, Harper Collins Ltd., NY, USA.

12. Broman, Goran; Holmberg, John and Robèrt, Karl-Henrik (2000), Simplicity without Reduction: Thinking Upstream Towards the Sustainable Society, Journal of the Institute for Operations Research and the Management Sciences, (30) 3.

13. Brownlie, D. T, (1993), The Marketing Audit: A metrology and explanation, Marketing Intelligence & Planning, 11,1, pg.4.

14. Brundtland, Gro Harlem (1987), Our common future, World Commission on Environment and Development, United Nations, New York, USA.

15. Campbell, D. & Stanley, J. (1963), Experimental and quasi-experimental designs for research, Rand-McNally & Co., Chicago, IL, USA.

16. Cañeque, Fernando Casado (2000), Social Standards: Measuring and reporting Corporate Social Performance, Corporate Reputation Review, 3, 2, pp 145-163.

17. Carrol, Archie B. (1979), A three Dimensional Conceptual Model of Corporate Social Performance, Academy of Management Review, 4(4), pp 497-505.

18. Carrol, Archie B. (1999), Corporate Social Responsibility: Evolution of a Definitional Construct, Business & Society, 38(3) pp 268-295.

19. Carson, David; Gilmore, Audrey; Perry, Chad and Gronhaug, Kjell (2001), Qualitative Market Research, SAGE Publications Ltd, UK.

20. Chahal, Hardeep and Sharma, R. D. (2006), Implications of corporate social responsability on marketing performance: a conceptual framework, Journal of Services Research, (April-September) 6:1.

21. Charter, Martin and Polonsky, Michael J. (1999), Greener Marketing: A global perspective on greening marketing practice, Greenleaf Publishing Limited, Shefield, UK.

22. Charter, Martin; Peattie, Ken; Ottman, Jacqueline and Palonsky, Michael, J. (2002), Marketing and Sustainability, Centre for Business Relationships, Accountability, Sustainability and Society (BRASS) in association with Centre for Sustainable Design, (April 2002).

23. Clarkson, M. B. E. (1995), A Stakeholder Framework for Analysing and Evaluating Corporate Social Performance, Academy of Management Review, Vol. 20, No. 1, pp. 92-117.

24. Coddington, Walter (1993), Environmental Marketing, McGraw-Hill, New York, USA.

25. Commoner, Barry (1971), The Closing Circle – Nature, Man and Technology, Alfred A. Knopf Inc. NY, USA.

26. Council for Sustainable Development, Prince of Wale's Business and Environment Programme from Cambridge University and BCSD Portugal - Conselho Empresarial para o Desenvolvimento Sustentável (2005), Rumo ao sucesso: Marketing e desenvolvimento sustentável, Industry Program from World Busines.

27. CSR Europe (2009), European roadmap for business toward a sustainable and competitive enterprise.

28. CSR Europe's B2B Laboratory (2008), Creating Wealth and Value at the base of Pyramid: Unlocking synergies among Business, Stakeholders and the European Commission.

29. De Long, J. Bradford (1998), Estimates of World GDP , One Million B.C. – Present, University of California, Berkeley, Department of Economics, http://delong.typepad.com/print/20061012_LRWGDP.pdf.

30. Dias-Sardinha, Idalina and Reijnders, Lucas (2005), Evaluating Environmental and Social performance of Large Portuguese Companies: A balanced scorecard approach, Business Strategy and the Environment, Mar/Apr; 14, 2.

31. Donaldson, Thomas and Preston, Lee E. (1995), The Stakeholder Theory of Modern Corporation: Concepts, Evidence and Implications, Academy of Management Review, Vol. 20, No. 1, pp. 65-91

32. EPA - Environmental Protection Agency of USA (2005), P2 Framework.

33. Epstein, Marc J. (2008), Making Sustainability work: Best practices in managing and measuring corporate social, environmental and economic impacts, Greenleaf Publishing Limited, Sheffield, UK.

34. Ferreira, Aurélio Buarque de Holanda (1999), Novo Aurélio: Século XXI, Editora Nova Fronteira, S.A., Rio de Janeiro, Brasil.

35. Fuller, Donald A. (1999), Sustainable Marketing: Managerial-Ecological Issues, Sage Publications, Inc., California, USA.

36. Fuller, Donald A. and Gillet, Peter L. (1999), Sustainable Marketing: Strategies playing in the background, American Marketing Association, Conference Proceedings, 10.

37. Fuller, Donald A., Jeff Allen and Mark Glaser (1996), Materials Recycling and Reverse Channel Networks: The Public Policy Challenge, Journal of Macromarketing (Spring), pp 52-72.

38. Ginter, Peter M. and Starling, Jack M. (1978), Reverse Distributions Channels for recycling, Californian Management Review (pre-1986); Spring: 20, 000003, pp 72-82.

39. Graedel, Thomas E. and Allenby, Braden R. (1995), Industrial Ecology, Prentice Hall, New Jersey, USA.

40. Grove, Stephen J., Fisk, Raymond P.; Pickett, Gregory M. and Kangun, Norma, (1996), Going green in the service sector – Social responsibility issues, implications and implementation, European Journal of Marketing, 30, 5, pp 56-66.

41. Gurau, Calin and Ranchhod, Ashock (2005), International green marketing: A comparative study of British and Romanian firms, International Marketing Review, 22, 5, pp 547-561.

42. Hawken, Paul (1993), The Ecology of Commerce: A declaration of Sustainability, Harper Collins, New York, USA.

43. Henion, Karl E. (1976), Ecological Marketing, Grid, Colombus, OH, USA.

44. Henriques, Irene and Sadorsky, Perry (1999), The Relationship between Environmental Commitment and Managerial Perceptions of Stakeholder Importance, The Academy of Management Journal; Vol. 42, No. 1, February 1999, pp. 87-99

45. Jones, Thomas M. (1995), Instrumental stakeholder theory: A synthesis of ethics and economics, Academy of Management Review, 20(2), pp 404-437.

46. Karna, Jari; Hansen, Eric and Juslin, Heikki (2003), Social Responsibility in environmental marketing planning, European Journal of Marketing, 37, 5/6.

47. Keoleian, G.A. and Menerey, D. (1993), Life Cycle Design Guidance Manual: Environmental Requirements and the Product System, Washington, DC: Risk Reduction Engineering Laboratory, Office of Research and Development, U.S. Environmental Protection Agency (EPA).

48. Kotler, Philip (1999), Marketing para o século XXI, Editorial Presença, Lisboa, Portugal.

49. Kotler, Philip and Keller, Kevin Lane (2005), Administração de Marketing, 12th Edition, Pearson Education do Brasil Lda., São Paulo, Brasil.

50. Krippendorf, Klaus (1980), Content analysis: An introduction to its methodology, Sage Publications, Beverly Hills, California, USA.

51. Kumaran, D. Senthil; Ong, S. K.; Tan, Reginald B. H.; Nee, A. Y. C. (2001), Environmental life cycle cost analysis of products, Environmental Management and Health, 12, 2/3, pp 260-276.

52. Ledgerwood, Grant (1997), Greening the Boardroom: Corporate environmental governance and business sustainability, Greenleaf Publishing Limited, Sheffield, UK.

53. Maignan, Isabelle and Ferrel O. C. (2004), Corporate Social Responsibility and Marketing: An integrative framework, Academy of Marketing Science Journal, 32, 1, pp 3-19.

54. Malhotra, Naresh K. and Birks, David F. (2006), Marketing Research: An Applied Approach, Pearson Education Limited, Edinburgh Gate, Harlow, Essex, UK.

55. McCarthy, E. Jerome and Perreault, William D. (1993), Basic Marketing: Managerial Approach, 10th Edition, Homewood, IL, USA.

56. Mendes, Isabel (2010), A Valorização da Natureza, Seminário ISEG, 13 de Janeiro.

57. Menon, Ajay and Menon, Anil (1997) Enviropreneurial marketing strategy: The emergence of corporate environmentalism as Marketing Strategy, Journal of Marketing, 61, 1, pp 51-67.

58. Myers, M. (2000), Qualitative research and the generalizability question: Standing firm with Proteus, The Qualitative Report On-line, 4(3/4), http://www.nova.edu/ssss/QR/QR4-1/myers.html

59. Ny, Henrik, Hallstedt, Sophie; Robèrt, Karl-Henrik and Broman, Goran (2008), Introducing Templates for Sustainable Product Development: A case study of Televisions at Matsuhita Electric Group, Journal of Industrial Ecology, 12, 4, pp 600-623.

60. Ottman, Jacquelyn A. (1992), Sometimes consumers will pay more to go green, Marketing News, p 16.

61. Ottman, Jacquelyn A. (1997), Green Marketing: Opportunity for innovation, NTC Business Books, Chicago, IL, USA.

62. Ottman, Jacquelyn A; Stafford, Edwin R.; Hartman, Cathy L. (2006), Avoiding Green Marketing: Myopia, Environment, Vol. 48, Iss. 5; pg. 22.

63. Peattie, Ken and Crane, Andrew (2005), Green marketing: Legend, myth, farces or prophesy?, Qualitative Market Research Journal, 8, 4, pp 357-370.

64. Pietzschke, Fritz and Wimmer, Franz (2005), Michaelis: Dicionário Inglês-Português, Editora Melhoramentos Lda., São Paulo, Brasil.

65. Porter, Michael E. (1991), America's Green Strategy, Scientific American, 264, pg. 98.

66. Presley, Adrien; Meade, Laura and Sarkis, Joseph (2007), A strategic sustainability justification for organizational decisions: A reverse logistics illustration, International Journal of Production Research, Vol. 45, Nos. 18-19, 15 pp. 4595-4620.

67. Pullman, Madeleine E.; Maloni, Michael J. and Carter, Craig R. (2009), Food for Thought: Social versus environmental procedures sustainability practices and performance outcomes, Journal of Supply Chain Management, 45, 4, pp 38-54.

68. Richey, R. Glenn Jr.; Mert, Tokman James; Wright, Rober E. and Harvey, Michael G. (2005), Monitoring Reverse Logistics Programs: A Roadmap to Sustainable Development in Emerging Markets, Multinational Business Review, 13, 3, pp 41-65.

69. Rios, Francisco J. Montoro; Martínez, Teodoro Luque; Moreno, Francisca Fuentes and Soriano, Paloma Cañadas (2006), Improving attitudes toward brands with environmental associations: an experimental approach, The Journal of Consumer Marketing, 23, 1, pp 26-33.

70. Robinson, Warren C. (1998), Global Population Trends: The prospects for stabilization, Resources, (Spring), pp.6-9.

71. Robson, Colin (1993), Real World Research: A Resource for Social Scientists and Practitioner Researchers, Blackwell, Cambridge, USA,

72. Rouseau, António José (1997), Manual de Distribuição: Uma visão global e estruturante da moderna distribuição, Abril/Controljornal Editora Lda., Linda a Velha, Lisboa, Portugal.

73. Sachs, Jeffrey (2009), Common Wealth, Casa das Letras, Lisboa, Portugal.

74. Salam, Moahamed Asif (2009), Corporate Social Responsibility in Purchasing and Supply Chain, Journal of Business Ethics, 85, pp 355-370.

75. SCAR (2010), SCAR 2009 Report, Scientific Committee on Antarctic Research, The International Council for Science.

76. SCAR (2011), SCAR 2010 Report, Scientific Committee on Antarctic Research, The International Council for Science.

77. Schuman, Abe (1959), The Marketing Audit: Its Nature, Purposes and Problems, In Analysing and Improving Marketing Performance: Marketing Audits in Theory and Practice, pp 11-19, edited by Albert New-Garden and Eugene R. Bailey, New York for AMA – American Marketing Association.

78. Shane, A. Megan and Graedel, Thomas E. (2000) Urban Environmental Sustainability Metrics: A Provisional Set, Journal of Environmental Planning and Management; 43, 5, pp 643-663.

79. Sheldon, Christopher (1997), ISO 14001 and beyond: Environmental management Systems in the real world, Greenleaf Publishing, Sheffield, UK.

80. Shen, Chung Hua and Chang, Yuan (2009), Ambition Versus Conscience, Does Corporate Social Responsibility Pay Off? The application of matching methods, Journal of Business Ethics, 88, pp 133-153.

81. Shermer, Michael (2008), The Mind of the Market, Times Books, New York, USA.

82. Sheth, Jagdish and Parvatiyar, Atul (1995), Ecological imperatives and the role of Marketing, pp 3-20, in "Environmental Marketing: Strategies, Practice, Theory and Research., edited by Michael J. Polonsky and Alma T. Mintu-Wumsall, Haworth, New York, USA.

83. Smith, Adam (1776), An Inquiry into the Nature and Causes of Wealth of Nations, 6th Edition, 1950, Methuen and Co. Ltd, London, UK.

84. Smith, Toby M. (1998), The Myth of Green Marketing: Tending Our Goats at the Edge of Apocalypse, University of Toronto Press Incorporated, Toronto Buffalo London, Canada.

85. Swanson, Diane L. (1995), Addressing a Theoretical Problem by Reorienting the Corporate Social Performance Model, Academy of Management Review, 20, No. 1, pp. 43-64.

86. Talberth, John (2009), A new bottom line for progress, Chapter 2 from 2008: State of the world - Innovations for Sustainable Economy, Worldwatch Institute.

87. Turker, Duygu (2009), Measuring Corporate Social Responsibility: A scale development study, Journal of Business Ethics, 85, pp 411-427.

88. Vaaland, Terje I.; Heide, Morten and Gronhaug, Kjell (2008), Corporate Social Responsibility: Investigating theory and research in the marketing context, European Journal of Marketing; 42, 9/10, pp 927-953.

89. Van Dam, Yinte K. and Apeldoorn, Paul A. C. (1996), Sustainable Marketing, Journal of Macromarketing; Fall 1996, pp 45-56.

90. Wartick, Steven L. and Cochran, Philip L. (1985), The Evolution of the Corporate Social Performance Model, Academy of Management Review; Vol. 10, No. 4, 85, pp. 758-769.

91. Waver, Paul; Jansen, Leo; Grootveld, Geert van; Spiegel, Egbert van and Vergragt, Philip (2000), Sustainable Technology Development; Greenleaf Publishing Limited, Sheffield, UK.

92. WBCSD – World Business Council for Sustainable Development (2000), Eco-Efficiency: Creating more value with less impact.

93. Weber, R. P. (1990), Basic content analysis, 2nd edition, Newbury Park, Sage Publications California, USA.

94. Williams, Emma (2008), CSR Europe's Sustainable Marketing Guide.

95. Willums, Jan-Olaf and Ulrich Goluke (1992), From ideas to action: Business and sustainable development, Ad Notam Gyldendal, Oslo, Norway.

96. Wood, Donna J. (1991), Corporate Social Performance Revisited, Academy of Management Review, Vol. 16, No. 4, pp 691-718.

97. Wood, Leonard A. (1990), U.S. consumers more concerned with economy than ecology, Marketing News, March 19, p 20.

98. World Commission on Environment for UN (1987), Our Common Future, From One Earth to One World.

99. Yin, Robert K. (2009), Case Study Research: Design and Methods, 4th Edition, SAGE Publications Ltd, London, UK.

15 CASE STUDY BOX INDEX

1. DELTA Social Report 2003
2. DELTA Sustainability Report 2003/2004
3. DELTA Corporate Social Responsibility Report 2004/2005
4. DELTA Sustainability Report 2006/2007
5. DELTA Accounts Report 2003
6. DELTA Accounts Report 2005
7. DELTA Accounts Report 2008
8. DELTA Accounts Report 2009
9. DELTA Rethink-Eco-Project Press Folder
10. Sustainable Marketing interview tapes (4 tapes)
11. Delta Q 10 capsules Box
12. Delta Q Capsule