

Beyond Public Transports

The Portuguese Environmental Disclosure in the Public Transports Sector

Master Dissertation in Business Administration

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ABSTRACT

Title: Beyond Public Transports: The Portuguese Environmental Disclosure in the Public Transports Sector

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Even though throughout the years there has been a growth in the society's mindset concerning environmental and social issues, it is still a field with several gaps and which severely lacks legislation. Several studies have already showed that by increasing legislation, there may be an increase on the amount of the companies' environmental disclosures. Therefore, in order to regulate and increase the environmental disclosures in Europe, the European Union issued a Recommendation for its Member-States which was transposed to Portugal as an accounting standard – DC29 (Environmental Matters) - which should've been followed by the companies. The purpose of this research was to analyse how the environmental reporting practices have evolved in the Portuguese Public Transports sector, and whether it was influenced, or not, by the issuing of the DC29 Accounting Standard (And from 2010 onwards, the NCRF26). The public transports sector is currently one of the most pollutant sectors of the European Union. This thesis was based on content analysis of the Annual Accounts and Sustainability Reports of four of the biggest companies of the Portuguese Public Transports sector. Findings seemed to indicate that, even though the companies are not disclosing accordingly to the standard, the quantity of disclosure did increase, and the quality also evolved into more comparable, and more objective information.

Key words: Sustainability, Social and Environmental Reporting, European Commission, Portuguese Public Transports.

JEL Classification System: Accounting and Auditing (M4); Environmental Economics (Q5).

RESUMO

Título: Beyond Public Transports: The Portuguese Environmental Disclosure in the Public Transports Sector

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Curso: **Dissertação de Mestrado em Business Administration**

Apesar de ao longo dos últimos anos ter existido uma clara mudança de pensamento relacionada com aspectos ambientais e sociais, este é ainda um tema com várias falhas, sendo de realçar a falta de legislação. Vários estudos académicos mostraram uma relação entre o aumento da legislação existente e o da divulgação ambiental das empresas. Assim, de modo a regular e aumentar a divulgação ambiental na Europa, a União Europeia emitiu uma recomendação para os seus Estados-membros que foi transposta para Portugal na forma de Directriz Contabilística (DC 29 - Matérias Ambientais), que deveria ter sido seguida pelas empresas nas suas Demonstrações Financeiras. O objectivo desta tese é o de analisar o desenvolvimento das práticas de divulgação ambiental no sector dos transportes públicos, e se este foi ou não, influenciado pela publicação da DC 29, sendo que este é, neste momento, um dos sectores mais poluentes da União Europeia. Esta tese foi elaborada com base na análise de conteúdo dos Relatórios Anuais, de Contas e de Sustentabilidade, de quatro das maiores empresas portuguesas de Transportes Públicos. Os resultados revelaram que, apesar de as empresas não estarem a divulgar as suas matérias ambientais de acordo com o que está explícito na DC 29 (e a partir de 2010 na NCRF 26), a quantidade da divulgação de facto aumentou, a sua qualidade evoluiu positivamente e as partes interessadas passaram a ter acesso a uma informação mais comparável e mais objectiva.

Palavras-chave: Sustentabilidade, Divulgações Ambientais, Comissão Europeia, Transportes Públicos Portugueses.

Sistema de Classificação JEL: Contabilidade e Auditoria (M4); Economia Ambiental (Q5).

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GLOSSARY OF ABBREVIATIONS

CER	Corporate Environmental Reporting
CIRVER	Centros Integrados de Recuperação, Valorização, e Eliminação de Resíduos Perigosos
CSR	Corporate Social Responsibility
EC	European Commission
EMAS	Eco-Management and Audit Scheme
ETS	Emissions Trading System
EU	European Union
FEE	Fédération des Experts Comptable Européen
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GHG	Green House Gas
GRI	Global Reporting Initiative
NGO	Non Governmental Organization
PNAC	Plano Nacional para as Alterações Climáticas
PESGRI	Plano Estratégico de Gestão de Resíduos Industriais
PNAPRI	Plano Nacional de Prevenção de Resíduos Industriais
SD	Sustainable Development
SEA	Social and Environmental Accounting
SEAR	Social and Environmental Accounting and Reporting
SD	Sustainable Development
SEEA	System of integrated Environmental and Economic Accounting
SNA	System of National Accounts
TBL	Triple Bottom Line
UNFCCC	United Nations Framework Convention on Climate Change
UNSD	United Nations Statistics Division
WCED	World Commission on Environment and Development

1 INTRODUCTION

Nowadays, there is an acknowledged need for the existence of an economy that respects the society's social, economic and environmental needs, despite the still existing difficulties regarding such integration in the daily management of companies and even countries. Therefore, there is the need to include environmental and social issues in the economic background of public policies, regulations and laws.

In the past years, there has been a growth in the society's mindset when it came to the environment and social issues, and the need to recognise it on the economy (Ropke, 2004).

Along with it came the acknowledgement of a broader, international audience. Several international events marked the 1990s, as more countries grew aware of the need of an international union in order to work on urgent matters such as: Biodiversity, CO₂ emissions, greenhouse gases, poverty, inequality, and many others.

Since the environmental issues gained a major focus, many companies started to disclosure and reporting more environmental information (Adams, 2004). Throughout Europe, legislation started to grow in order to regulate and harmonize the information available to stakeholders.

In the mid-1990s there was a growing trend in the developing of a regulatory framework for environmental reporting, even though it mostly consisted of voluntary initiatives. The European Commission (EC) produced some useful information such as the Fifth Action¹ (1993) and the Sixth Action² (2001) Programmes on the Environment and the Commission Recommendation of the 30th May 2001 regarding the recognition, that it was important to be able to measure and disclose environmental issues.³ The EC's Recommendation was considered a major breakthrough, since it suggested that the member states should adapt their orientations internally, at a national level (Pwc, 2004).

In Portugal, the environmental subject was incorporated in its accounting system in 2002, through the DC29 (Directriz Contabilística nº 29), which finally became mandatory in

¹*Towards Sustainability* (1993)

²*Environment 2010: Our Future, Our Choice* (2001)

³ There were many other documents produced by professional accounting professionals and bodies.

E.g.: *European Accounting Reporting and Auditing: Survey of current activities and developments within the accountancy profession* (1995)

2006. This standard explains the treatment of the environmental information on financial reports: what, how and where the environmental information should be reported. Before this date, the majority of the Portuguese companies did not disclose any information (Rodrigues *et al.*, 2002).

In this thesis, it is analysed how the environmental reporting practices have evolved in the Portuguese public transports sector. The public transports sector, is currently one of the most pollutant sectors of the European Union, and one which most contributes to the energy consumption and production of Greenhouse Gases (EuroSTAT Data, 2004), along with many other impacts such as traffic congestion, noise and visual pollution, road killings, amongst others.

The goal of this thesis is to identify the stage and practices of environmental disclosure of the Portuguese Public Transport sector, through voluntary and mandatory environmental disclosure instruments, and determine the impact of the DC29 in Portugal. In particular, this thesis aims to answer the following qualitative research questions:

- (i) Has the quantity of the corporate environmental information increased significantly?
- (ii) How has the Quality of disclosure evolved in Portugal?
- (iii) Has the DC29 (and afterwards the NCRF 29) produced a significant impact on the Portuguese corporate environmental reporting?

In order to achieve this goal, the thesis has been divided into several chapters: First, an overview of the sustainable development definition and economic background; Next, the European Union's environmental-related initiatives; Afterwards, the role of companies on the environmental acknowledgement evolution, such as Corporate Social Responsibility (CSR), Corporate Environmental Reporting (CER), Social and Environmental Accounting and Reporting (SEAR); There is also an overview of the international trends in Reporting practices and legislation, particularly in Portugal.

Later on, there is a presentation of the Transport sector, its major environmental issues and of the analysed Portuguese companies.

A case study methodology has been used, and was applied to the four largest Portuguese companies of the Public Transport sector. The data used for this study was collected from

the annual and sustainability reports publically available from 2003 to 2012, and from their websites. An overview of articles and press releases written by these companies and available on their web sites was also analysed. By following this approach, is possible to obtain a better overview of the companies and the sector, as recommended by case study methodology (Yin, 2003). Regarding the contribution of these thesis for the existing literature, it is possible to enumerate the following contributions: (i) It provides an overview of the Portuguese Public Transport sector and how it has implemented the environment regulatory disclosure; (ii) And it also contributes to the Legitimacy and Stakeholders Theories.

2 LITERATURE REVIEW

2.1. Sustainable Development: An Introduction

A sustainable society has been described as a society: (i) that meets the needs of the present generation, (ii) that does not compromise the ability of future generations to meet their own needs, (iii) and in which each human being has the opportunity to develop itself in freedom, within a well-balanced society and in harmony with its surroundings (WCED⁴, 1987).⁵

The definition and policies of Sustainable Development continued to evolve since the Brundtland Report. However, the core of the conventional Sustainable thinking has remained the same, since it is still focused on the three dimensions of sustainable development: Environment, Social and Economic. The three dimensions were frequently represented as interlocking circles because the three objectives need to be integrated with each other in order to restore the necessary balance between the three dimensions of sustainability.

The concept of Sustainable Development appeared around the 16th century but was applied mainly to forestry (Emnert, 2009). However, throughout the centuries, the definition evolved significantly.

2.2. Economic Background

The first formal academic approach to sustainability made its appearance in 1798, with “An Essay on the Principle of Population”(Malthus, 1789) and was followed by both David Ricardo and John Stuart Mill. These economists began by questioning the feasibility of continual economical growth.

John Stuart Mill (1848) defended Malthus’ ideas, adding that unlimited growth would lead to the destruction of the environment and a diminished quality of life, and it would be

⁴Also known as the Brundtland Commission.

⁵Even though this is a widely followed definition, as one of the bigger critics of this definition Banuri (1999) claims that “there is considerable professional disagreement about this definition, mostly on how to put the idea of sustainable development into operation, but also to do with questions of definition and on its claims to synthesis”.

preferable to choose a “stationary state”. In 1859, Mill introduces the “harm principle” in which a person is free to act as long as its actions are not to harm others. In his works he is also one of the first economists to admit that perhaps the growth of production will be at the expense of environmental damages. Mill was one of the major contributors to the Environmental Economics, along with Smith, Ricardo, Malthus and Marx (Ropke, 2004).

In spite of the relationship between environmental degradation and economic growth that had been established in the 19th century, this relationship was only fully developed over a century later.

At the end of the 19th century, Arthur Cecil Pigou (1877-1959) introduced the concept of “externality” on the Microeconomic theory, as “a situation in which the private economy lacks sufficient incentives to create a potential market in some good and the nonexistence of this market results in losses of Pareto efficiency” (Heller and Starrett, 1976,p.10). In this way, environmental issues became present on the Microeconomic theory, as an important part of social costs, since many of negative externalities are strongly related to the environmental penalties of production. Pigou also introduced the Pigouvian taxes, which were designed to correct the market back to efficiency when in the presence of a negative externality. Both Pigou and Coase⁶ defended that, by imposing environmental-associated taxes, which would define the negative impact of a company’s activity, then companies would be forced to internalise their negative environmental impacts (negative externalities).

The Environmental Economics uses several neo-classical economical methods and it focuses on the market failures – where the “invisible hand”⁷ of economics is considered unreliable. These failures occur because the market economy has failed to recognise the true value of the environment, mostly because the environmental resources were categorized as goods that could be consumed without any cost or limitation (Smith, 1776). After the World War II, there were several concerns on the insufficiency of natural resources, particularly in the United States (Ropke, 2004).

⁶The concept of Externalities eventually became one of the main concepts of Environmental Economics, along with the Coase theorem⁶ (Coase, 1937), which focuses on the property right issues. E.g.: There will always be pollution because no one owns the property rights on it. No one is responsible for it and therefore no one can be held accountable for it.

⁷Invisible hand, or invisible hand of the market, is how economists describe the self-regulation nature of the marketplace (Smith, 1776).

The Paley Report, published in 1952 by the US President Truman's Materials Policy Commission, expressed worries on the increase demand of production. Fischer and Kowalski, in 1998, were responsible for the great amount of documentation and research thanks to a disciplinary conference on "Man's Role in Changing the Face of the Earth" (Thomas, 1956).

According to Ropke (2004) different schools of thought developed during the 1950s and 1960s corresponded to the three functions of the economy that later appeared in introductions to environmental and resource economics: (i) Resources for production; (ii) Assimilative capacity to absorb pollution; (iii) Direct utility related to the enjoyment of nature (also referred to as the amenity value).

Simon (1981) argued that even though through the growth of population there are negative economic and environmental consequences, increasing wealth and technology was going to make more resources available. When confronted with the called "Malthusian catastrophe", Simon defends that the solution is within the innovation of markets and people. The old resources would be recycled and new alternatives are assumed to be developed by the market, which would make more resources available. Simon had a more positive view of the future and criticized heavily the negative point of view of Malthus.

Several new approaches to pollution and the environment became a part of the public awareness in the beginning of the 1960s (Carson, 1962; Worster, 1994, p.354; Craige, 2001, p. 80). The increased public awareness raised several social movements and encouraged politicians to move towards taking action (Ropke, 2004).

The other themes that became increasingly relevant were the increase in world population and the insufficiency of resources, and so they were brought back by Ehrlich (1968) and through by Meadows et al (1972). The latter brought a broader acknowledgement of the challenges related to the environment, resources and population growth, and was followed for the United Nations Conference on Human Environment in Stockholm in the same year of its publication.

The energy-related issues came forward with the oil price shock in 1973 and the following years of energy crisis. Those issues focused on: Energy quality; Labour Productivity; Efficiency of food production systems; Increasing energy costs; Empirical Models; Valuation (Ropke, 2004). Their main precursors were, amongst others, Constanza,

Cleveland, Ayres, Kaufmann, Mick Common, John Proops, Sylvie Faucheux and Karl Erik Eriksson, and they focused mainly on the creed that Energy was the most important environmental-related issues (Cleveland, 1987).

During this period, two very distinct economic movements came through: Natural Resource and Environmental Economics (Pearce, 2002). Nevertheless, with the economic crisis of the 1970s and 1980s and the high unemployment rates, together with hi-tech modifications, and other social changes, other issues became the centre of attention of most of the social-economists, instead of the environmental ones, which were put aside (Ropke, 2004).

2.1.1 Ecological Economics

Finally, in 1989 the first issue of the Ecological Economics journal brought forth the main initiators of Ecological Economics: Herman Daly, Ann Mari Jansson, Robert Constanza and Joan Martinez-Alier (Ropke, 2004). Ecological Economics was defined by Boulding (1996) as “space” economies⁸. His futuristic vision was shared by two other contributors: Daly (1968) and Ayres and Kneese (1969), and followed by a report by Kneese *et al.* (1970). In fact, Daly (1996) argued that fundamental changes needed to be undertaken on the traditional vision of economists and to change it for an open vision on a finite natural ecosystem. Daly argued that it should be clear that the man is limited by the natural capital instead of the artificial.

One the main deviations of the Ecological Economics in relation with the neo-classical models is related with the consumption aspect, since for the ecological economics consumption would have to be minimized and production should take into account the limitations imposed by the environment, and therefore, the classical growth models were considered as not adequate for this “spaceman” economy.

2.1.2 The Classical economy's GDP and the Green GDP

The major problems of the classical economy are reflected on its indicators, particularly the Gross National Product (GDP) (European Commission, 2010). Developed in the

⁸“In which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy.” Boulding, 1996

1930s, GDP is a known macro-economic indicator that has been used to measure and compare several countries' market performance and progress (European Commission, 2010).

The GDP has been repeatedly referred to by leading decision-makers as if it would generally represent progress, when in fact it only represents the economic level (Wu J. & Wu T., 2010). However, when presenting the GDP to Congress in 1934, Simon Kuznets was the first to point out that GDP was a measure of a nation's well-being, but designed to measure only a part of the society's global activity (Wu J. & Wu T., 2010).

According to Samuelson (1961), Nordhaus and Tobin (1972), Hueting (1974), Hirsch (1976), Sen (1976), Daly (1977), Hartwick (1990), Tinbergen and Hueting (1992), Arrow *et al.* (1995), Vellinga and Withagen (1996), Dasgupta and Mäler (2000), and Dasgupta (2001), the most common criticisms are: (i) The fact that the GDP treats events of social decay and natural disasters – such as divorce, crime, clearing up after car accidents, oil spills, resources depletion, costs of congestion, and other polluting activities and other natural disasters – as positive contributors to the GDP, since many of them generate production, even though they do not add to society's well-being; (ii) The GDP treats the depletion of natural resources as income, and not as a depreciation of asset; (iii) GDP ignores the negative aspects of relying on foreign assets and importations to sustain a country; (iv) Ignores the non-market activities and economy such as volunteer work in the community or childcare. It also ignores indispensable factors for human survival, such as the climate and carbon-related environmental regulation and ecological recycling.⁹

Recently, Stiglitz *et al.* (2009) has identified and formalized the limits of GDP. The authors confirmed the urgency to create new and improved indicators, since one of the main problems of the traditional GDP does not lie upon its utility but upon its misuse as a well-being indicator, at a global level and to make important political decisions. It has also been implied that the global warming crisis is, in fact, made worse due to the fact that the emissions are not taken into account in standard national income accounts (Stiglitz, Sen and Fitoussi, 2009).

⁹ Moreover, on the book *Deep Economy* it is stated that as the GDP increases, often quality of life increases only until a certain point, where it starts to decay, leading to rising rates of alcoholism, depression, suicide, crime, and other social major concerns (McKibben, 2007).

The Green GDP, which started to be discussed in the early 1980's, is one of the proposed measures that takes into consideration both the economic and human aspects of a certain country's performance (Wu J. & Wu T., 2010). The Green GDP takes into consideration the economic costs of pollution and degrading natural resources, over passing the disadvantages of the traditional GDP (Wu J. & Wu T., 2010).

There have been some attempts to test and implement this different concept of GDP. For instances, in 2004, the Chinese GDP index was temporarily replaced for the green GDP index. Nevertheless such index was put aside in 2007, due to the unacceptable losses and almost inexistent growth rate that some provinces had been reduced to (Economy, 2007). Also India has tried to implement the Green GDP, and has Jairam Ramesh, the country's Environment Minister, said "An exercise has started under the country's chief statistician Pronab Sen and by 2015, India's GDP numbers will be adjusted with the economic costs of environmental degradation" (Economy, 2007). European countries such as Denmark and the UK, are looking to implement the Green GDP. The Danish government is investing in the Green GDP research project that the World Bank is developing, and will be volunteer country where the methods created by the World Bank will be applied. The UK government is also starting the process of measuring green GDP and is planning to adjust the traditional GDP to environmental costs.

Following these concerns, the European Commission (EC) has been, since 2007, attempting to develop an indicator able to surpass the gaps found in the previous indexes. The EC released in 2009 several documents related with the "Adjusted GDP"¹⁰ issue, with the objective of creating a comprehensive environmental and quality of life index which would balance social, economic and environmental present worries.

2.2 The European Union Environmental-Related initiatives and Challenges

The institutions and governments have been taking up a primary role in global environmental negotiations and taking actions (Gray *et al.*, 1996).

¹⁰GDP and Beyond: Measuring progress in a changing world (EU COM/2009/0433)

One example was the 1997 United Nations Conference on Climate Change in Japan, where the EU convinced its members to commit to greenhouse gas reduction up to 20% by 2020 (EC, 2012).

Another broader example is the Sixth Environment Action Programme of the EC for the period of 2002 to 2012, adopted on the 22nd of July of 2002 and which focuses on four priority areas for action:

- i) Measures against climate change, the Kyoto Protocol and the ETS (Emissions Trading System) - The emphasis of this area is upon helping the EU to deal with the consequences of climate change as well as to combat these climate changes within and outside the EU;
- ii) Biodiversity - The aim of this area is to protect and preserve the various ecosystems and species that are present in the EU;
- iii) Environment and health - This area focus on the improvements needed for the quality of the environment from a health point of view;
- iv) Sustainable management of resources and waste - This area has the concernment of the consequences of the use of resources in the EU in terms of impact and the sustainability of them

Taking into account that these environmental action programmes imply the development of directives and promotes investment in specific sectors, it is possible to state that such institutional programmes and commitments can have an impact in the economy.

2.2.1 The Kyoto Protocol

The Kyoto Protocol was an accord developed by the United Nations Framework Convention on Climate Change (UNFCCC), between 169 countries in 1997, reinforced by the Russia's ratification in 2005. The participating countries are committed to cut emissions of several greenhouse gases (not only CO₂), being also possible for the countries who issued emissions above the defined targets, to engage in emissions trading with other participant countries which could afford such a trade. Even though the Kyoto goals were collective, due to the different amounts of emissions and population between several countries, some individual goals were set in some countries.

Savins (2005) refer that the problems with the Kyoto Protocol – and therefore the reason why the government chose not to join – could be summed up in: (i) The Protocol targeted industrialized countries alone, even though the growth in greenhouse gas emissions is known to come mainly from developing countries; (ii) It would be very costly for the major economies such as the US to implement the necessary measures, due to the very changeling targets they would have to meet; (iii) They also considered that the Protocol would only have minor effects on global emissions, since it relies only on short-term emission reduction targets for 34 industrialized countries and no targets for the remaining ones; (iv) Some even say that even the thresholds met at the time were not enough and should be much more severe and drastic, since the current environmental damage was already far worse than expected (Stavins, 2005).

To meet such commitments, the ETS was created in 2002, in order to set limitations on the amount of Carbon dioxide (CO₂) produced in six key industries: Glass, cement, energy, steel, brick-making and paper production. In 2008 aircraft emissions were added to the ETS, which meant a breakout for the transport sector.

Even though the EU is on track to achieve its GHG (Green House Gas) emission reduction targets, the global CO₂ emissions are more than 40% higher than they were in 1990. (EC, 2002)

2.2.2 Waste Policy

Even though there have been many progresses on recycling and incineration, the amount of land filled waste has not decreased due to its continuous increase in production.

The current waste policy of the UE aims to reduce the negative impact caused by waste from production to disposal, via recycling. In this way, waste is seen as a potential resource to be exploited.

Included in the strategy is the simplification of legislation by merging the several Directives¹¹ (and their subsequent overlapping) and also the prevention of the negative impact of the waste. The strategy also offers a framework Directive on waste, whereas the member states are required to develop programmes to prevent waste production.

¹¹ The framework Directive on waste, the hazardous waste directive, the waste oil directive, and the IPPC Directive, as well as consolidating the three Directives on waste from the titanium dioxide industry (European Union website, 2012)

2.2.3 *The Portuguese Environmental Initiatives*

In Portugal, like in the European Union, there has been several plans and actions targeted at the environmental issues, some of which will be summarily described below.

The Plano Nacional para as Alterações Climáticas¹² (PNAC) shared the Kyoto Protocol goals, applied to the Portuguese background. Portugal's goals were, simultaneously, to reduce 8% of GHG emissions between 2008-2012, and to limit its increase in 27%. The update of the PNAC in 2006 reinforced the previous measures and the existence of the Fundo Português de Carbono.

The waste area is covered by the Plano Estratégico de Gestão de Resíduos Industriais (PESGRI¹³) and the Plano Nacional de Prevenção de Resíduos Industriais (PNAPRI). The PNAPRI aims to prevent the creation of both quantity and danger of industrial waste, by changing of wrongful behaviour and preventive technologies. To deal with the dangerous waste, the Centros Integrados de Recuperação, Valorização, e Eliminação de Resíduos Perigosos (CIRVER¹⁴) treat them with the adequate methodology.

In this way, even though these initiatives only cover two of the Sixth environmental action programme areas, Portugal aims to integrate the European Union's goals into its own policies and environmental practices.

2.3 **The role of Companies**

2.3.1 *Corporate Social Responsibility (CSR)*

The issues of sustainability previously discussed at macroeconomic level, can also be analysed at the level of the companies. In fact, for a very long time, the classical economists were attached to the existing theories and models and the social role of companies, and CSR was not considered as a significant issue (Hopkins, 2003).

In the 1970s there was a significant debate between Davis (1973), Friedman (1962) and Samuelson (1971) on the new role of a company in the market economy. Friedman defended that the only responsibility of a company is to its own profit and competition

¹² Resolução de Conselho de Ministros n°119/2004, 31st July

¹³ DL n° 561/99

¹⁴ DL n°3/2004, January 3rd

worries¹⁵, whereas David and Samuelson agreed upon the interaction and involvement with the community.

Freeman (1984) identified and modelled the so-called stakeholders of an organization. It was a theory directly contrary to Friedman’s, which defended that no one, except the shareholders, had the right to claim in relation with the company’s activities. According to Freeman (1984), stakeholders were anyone who is affected by the organization’s actions, policies and decisions, or any individual who on which the company is depending to survive or succeed

Elkinton (1997), develops a new relationship between companies and society where he relates the individual social responsibility of companies to economic development, market competitiveness and innovation, as expressed in table below. Whereas the old model focused on adding value individually, through compliance and constant growth, the new is centred on the global vision and adding value through consistent and competitive advantage. The economic growth is also viewed differently, whereas the effective societal growth is achieved through sustainable consumption instead of the constant production.

OLD MODEL	NEW MODEL
Externalization of costs	Internalization of costs
Compliance	Competitive advantage
Country-by-country standards	Global consistency
Adding volume	Adding value
Production growth	Sustainable consumption

Exhibit 1 – Old Model Vs. New Model.
Adapted from John Elkinton, *Cannibals with Forks*, 1997

It was also in the decade of 1990 that legislation on environmental issues was fast growing. Companies received wake-up calls to manage their environmental and social impacts in better ways (Wilmshurst and Frost, 2000), gaining an audience by saying this would add value to their companies. As a response, the first independent environmental reports were written and accounting systems were developed in order to increase their environmental and social disclosure practices (Larrinaga *et al.*, 2001; Gray *et al.*, 1995a).

¹⁵“The social responsibility of business is to increase profits” Friedman, 1970

Several International cooperation Treaties were signed in 1993, with the launch of the System of National Accounts (SNA) (Commission of the European Communities and others, 1993). Also in 1993, the United Nations Statistics Division (UNSD) elaborated the System of integrated Environmental and Economic Accounting (SEEA). And on that year, for the first time, a United Nations publication set out a framework to systematically account for the flows of environmental resources, according to the SNA structure. Since then, companies have used standardized procedures and practices to perform an efficient environmental management (E.g.: ISO 14000).

2.3.2 Instruments of corporate social responsibility reporting (CSRR) and Corporate Environmental Reporting (CER)

As stated in the EC's report entitled *Mapping instruments for corporate social responsibility (2003)*, Corporate Social Responsibility Reporting instruments may be: (i) declarations of principles or corporate codes of conduct; (ii) guidelines or standards for management systems and certificates retrieval; (iii) Rating indexes used by socially responsible Investment Funds and (iv) structures of reporting and accounting.

These instruments may be provided by NGOs, rating agencies, governmental organisms, corporate enterprises, or newly created organisms such as the Global Reporting Initiative (GRI). The GRI is a non-profit, network based organization which aims to provide with a comprehensive and comparable sustainability reporting framework (Willis, 2003).

All of the instruments are voluntary options of disclosure and may be subject of auditing processes, despite the fact that in some countries such as the UK, France and South Africa it is possible to find some obligations regarding the reporting of listed companies in the topics of ethics, environmental and social (KPMG, 2011).

As code of conduct or declaration of principles there is the UN Global Compact, which takes action in the creation of sustainable development guidelines between companies, in the areas of environment, human rights, corruption and work conditions.

Regarding the environmental management systems and certificates, it is possible to identify several standards, but for the purpose of this thesis the author decided to refer the ISO 14000, the EMAS (Eco-Management and Audit Scheme), the EU Eco-label and the Forest Stewardship Council (FSC).

In relation with the CSR, there are also some methodologies and guidelines that can help companies to implement and report their sustainability strategy. Under this umbrella we can identify the AA 1000 Standard and the GRI Guidelines.

The ISO 14000 is a quality standard which integrates the environmental issues, more specifically a company's environmental management, control of corrective measures, environmental impacts, and legal requirements, amongst others. It is similar to the EMAS, but this last one is specific to the retail sector, universities, hospitals, amid others, and contemplates only European countries. The EMAS¹⁶ is an environmental regulation which was implemented by the European Commission in 1993, aiming to aid companies and other organizations to evaluate, report and improve their environmental performances, and compare them amongst each other (European Commission, 2012).

The EU Eco Label is a labelling system for both food and consumer products, introduced since the 90's, and intended to help consumers identify environmentally friendly products while shopping and, therefore, increase their environmental awareness (Erskine and Collins, 1997).

The FSC is a non-profit organization dedicated to promote responsible forest management worldwide and also enabling consumers to make informed choices on their consumption of goods (Cohen and Murphy, 2001). The FSC Labels indicate that the product they are attached to come from well-managed forests or from trusted sources with a guarantee of responsible forest management (Cohen and Murphy, 2001).

The AA1000 is a social responsibility standard, focused on the implementation of stakeholder dialogue and the incorporation of its outcome in the company's strategy. This standard can also be used to assure the quality of both reporting and auditing (Rego *et al.*, 2006).

The Global Reporting Initiative (GRI) is a non-profit organization which, amongst other goals, aims to provide standards and frameworks so that companies may create their sustainability reports¹⁷, as routinely as the financial ones. The GRI Guidelines are the most

¹⁶ EC Regulation Nr. 1221/2009

¹⁷ Also known as ecological footprint, Environmental Social Governance (ESG), Triple Bottom Line (TBL), and Corporate Social Responsibility (CSR) reports.

used and trusted framework mainly because of their “multi-stakeholder¹⁸, consensus-seeking approach” (GRI, 2002).

According to the GRI Sustainability Disclosure Database, over 4000 organizations from 60 countries are producing their sustainability reports using the GRI Guidelines. They apply to: (i) corporate businesses; (ii) Public agencies; (iii) NGOs; (iv) Smaller enterprises; (v) Industry groups, and others.

There has been a development on the environmental and social reporting of companies, since companies have felt the pressure from society to disclose such information. Nevertheless it is also relevant to understand how social and environmental aspects have gradually being integrated in the accounting frameworks.

2.3.3 *Social and Environmental Accounting (SEA)*

Social environmental accounting (SEA) practices go back to the 60s and 70s, experiencing major developments on the 80s (Adams, 2004). Being possible to find work developed already in the seventies by Ullmann (1976) and Dierkes and Preston (1977), it was in the 1980s and 1990s that social and environmental accounting reached its peak. In fact, in the decade of 1990 there was a larger focus on the environmental questions than in social matters (Gray, 2002), maybe due to the increase in new environmental-related legislation (Adams et al, 1998).

In the 1990s many entities such as, United Nations Environmental Programme (UNEP); KPMG; Investor Responsibility Research Centre (IRRC), between others, supported and developed a wide range of environmental reports (Weeler and Elkington, 2001).

The first Triple Bottom Line (TBL) report, a global sustainability report, was introduced by John Elkington in 1993, in his Book “Cannibals and Forks”. It became the reference for future environmental reports. The TBL approaches sustainability on its three dimensions: Economic, Social and Environmental, and introduces a multi-stakeholder approach, by arguing that the views of the stakeholders should be incorporated in the strategy of the company (Brown *et al.*).

¹⁸broad cross section of society — business, civil society, labour, accounting, investors, academics, governments, and others — from all around the world; Having multiple stakeholders ensures that multiple needs and all stakeholders are considered.

Since there was a growing importance given to the environmental aspect, as seen before, many companies were disclosing more environmental information on autonomous reports which focused merely on that aspect (Adams, 2004).

Nevertheless, it was possible to understand that during the 90's there was significant growth in the number of companies which issued sustainability reports - In fact, most of the environmental reporting has been done through sustainability reports (Tinker and Gray, 2003). . These sustainability reports provide quantitative and qualitative information on a company's environmental, economic and social performance. Along with the growth of interest on social and environmental issues, the academic work and articles published have also increased in that decade (Gray, 2002; Deegan, 2002; Parker, 2005).

It is possible to identify several reasons for such growing number of sustainability reports. According to KPMG (2008) the main motivations that has lead companies to produce such sustainability reports may be defined as: (i) Demonstrating transparency; (ii) Creating Financial value; (iii) Enhancing reputation; (iv) Achieving continuous improvement; (v) Improving regulatory compliance; (vi) Strengthening risk awareness and management; (vii) Encouraging innovation (viii) Enhancing management systems and decision making; (ix) Raising awareness Attracting long-term capital and favourable financing conditions; (x) Maintaining license to operate; (xi) Establishing competitive position and market differentiation

The borders between social and environmental accounting, can be difficult to distinguish, and Eugénio (2009) suggest that if they ever existed, they were fuzzy and ever changing. Some authors (Eugénio, 2009) consider that there are three main studies on the historical evolution of social and environmental accounting research: Matthews (1997) reviews the existing literature between 1971 and 1995 and concluded that accounting research efforts should be redirected into the social and environmental areas. Gray (2002) analyses the literature published in the last twenty-five years and concludes that there was a loss of the domain publishing by authors from the USA and which were the possible reasons for the publishing difficulties. He also hoped for the development of SEA for the next twenty-five years. Parker (2005) criticizes the contemporary research on SEA, referring to the texts published from 1980 onwards. In his paper he concludes that 66% of the papers published focus on environmental information, 25% refer to social responsibility and only 9% study both areas.

2.3.4 SEAR evolution at the turn of the century

After the year 2000, the main published articles about SEAR can be divided into four categories according to Eugénio (2009): (i) Social and Environmental Accounting ; (ii) Social and Environmental Disclosures; (iii) Relation between disclosure and performance; (iv) Regulation impact.

When it comes to SEA published articles, they are many and they focus on various subjects: Organizational change and its relationship with environmental accounting was studied by Larrinaga *et al.* (2001) and Larrinaga and Bellington (2001); Valuation techniques and accounting tools to improve SEA processes were covered by Herbohn (2005), Bouma and Kamp-Roelands (2000) and Lamberton (2000); Accounting attitudes on social and environmental questions by accounting professionals were the themes chosen for Kuasirikum (2005) and Lodhia (2003)'s papers; It is also important to mention Bartolomeo *et al.* (2000) on his study across countries. Bartolomeo *et al.* (2000) investigated the connections between environmental management and management accounting functions of a company, on 84 companies in the UK, Germany, Italy and the Netherlands.

In relation to the issue of Social and Environmental disclosures, that analyses the social and environmental disclosure practices of companies, it is also possible to find several articles. Kuasirikum and Sherer (2004) and De Villiers and Staden (2006) analyse and criticize, respectively, annual reports in Thailand and South Africa. Freedman and Stagliano (2002) explore the disclosure of companies which are entering the USA's securities market for the first time. Other authors are also included in this topic and connect to financial instruments and their connection with the companies and environmental disclosure (Campbell *et al.*, 2003b; Sridhar and Magee, 2001).

Regarding the relation between disclosure and performance, several articles can be found in the last decade. The relationship between environmental and disclosure and company's performance been analysed by several authors (Patten, 2002; Hassel *et al.*, 2005; Murray *et al.*, 2006; Adams, 2004) and many have used content analysis of annual reports and longitudinal case study analysis in order to reach their conclusions. One of the most comprehensive reports on the topic however is KPMG's International Survey of Corporate

Responsibility Reporting, which reached several interesting conclusions on the topic that will be mentioned further on (KPMG, 2008).

Finally, many studies covered the area of regulation impact regarding environmental and social behaviour of companies. There were studies made in many different countries and contexts such as Spain, UK, Australia, Canada and USA. For instances, Larrinaga *et al.* (2002) and Lena *et al.* (2007) analyse accounting regulation and standards in Spain; Criado *et al.* (2008), also in the Spanish context, analyses the compliance with mandatory environmental reporting in financial statements. Bebbinton *et al.* (2003) try to build systems for effective regulation, and based his thesis on electricity sector in Spain and in the UK.

2.3.5 *Underlying Theories in SEA*

Many of these papers have an underlying social theory as a part of their study, attempting to explain corporate social behaviour (Bebbington *et al.*, 2008). The most used theories in SEA are the legitimacy theory (Tilling, 2004; Deegan, 2002) and the stakeholder theory.

The legitimacy theory is based upon the idea that in order to legitimise their existence companies must operate in agreement with the existing set of values and beliefs of the society it is integrated in (Gray *et al.*, 1996). In this way, the legitimacy can be lost, if the company does not fulfil the society's requirements and expectations (Magness, 2007; Deegan, 2002). Tilling (n.d.) Stated that a business requires legitimacy to operate, just as it needs money or other basic need, since it improves the stakeholder relationship, ensures the autonomy of business, and insures the inflow of capital (Cohen and Brown, 2008). This means that according to this theory, a company need its legitimacy to survive.

On the stakeholder theory, the success of a company is determined by the capability of answering to the needs of the stakeholders. The stakeholder theory walks hand in hand with the legitimacy theory and they are often used as complements to each other (Deegan, 2002). The critics of this theory lay upon the lack of a framework to define the stakeholders. Mitchell *et al.* (1997) tried to identify an organization's stakeholders as all of those who have the power, legitimacy and urgency to influence and speak in behalf of the firm (Driscoll and Starik, 2004).

Other theories are used in SEAR, such as accountability theory, institutional theory, habermasian theory, structurational theory, ecological responsiveness theory, and many

others. Rahaman *et al.* (2004) uses a combination of institutional theory and Habermas's legitimacy theory to explain SE Reporting at a Ghanaian public sector (Eugénio, 2009). Even though these other theories are considered as not fully developed they provide material for research and studies of corporate social behaviour (Gray, 1996; O'Donovan, 2002).

For the purpose of this thesis, the underlying theory chosen to support the research done is the Legitimacy theory, due to the fact that the DC29 is part of the Accounting Standards which the companies are compulsory to use.

2.3.6 International trends in Corporate Sustainability Reporting

Even though the overall rates of sustainable reporting have been fast growing over the last years, the major issues remain with the quality of those reports. There have been several international studies and reports which arrived to conclusions on the general state of reporting at international levels. These reports study the quality, quantity of social and environmental disclosure of companies (Gray and Milne, 2008).

Since the 1990s, KPMG has been evaluating corporate reporting. Their research, especially the latest one, approaches the problem through country evolution, the type of information produced for the stakeholder, evolution of several areas, and always on the three areas: social, economic and environmental.

The KPMG's latest report on the subject, issued in 2011, confirms the belief that bigger companies are prompted to be better at the Sustainability Reporting than smaller ones. Also, large companies which are not already reporting will soon run the risk of being seen as "less transparent" by their stakeholders. They also conclude that it is becoming critical to stay competitive, and to increase the organization's value through Corporate Responsibility actions. One of the most surprising findings of the KPMG's report was the low rate of active reporting companies (57%) of the transport industry, which have been established as one of the most pollutant sector.

Another conclusion from the KPMG Survey was that the sustainability reports eventually evolved into very complete and thorough reports, engaging the stakeholders, and disclosing not only environmental information but also social and economical.

According to KPMG (2011), the Corporate Environmental Reporting grew from 50% to 80% in only a couple of years and the creation of standard reports changed the openness and accountability between companies, which are finally acknowledging the benefits of sustainable actions and are obliged to interact with diverse stakeholders and their demands.

2.3.7 The European Legal Framework and the Transposition to the Portuguese Legislation

According to KPMG (2011), reporting practices have been varying widely depending on companies and sectors. This made it difficult to understand, use and compare the information in a regular way. This also lowered the value of information provided by companies, since it could only be taken into consideration partially. Instead of being presented in a clear, standardized way through the annual accounts, the information is disclosed in non-harmonized ways.

The main issue in this area is, in fact, the legislation and Gray *et al.* (1996) defends that Europe should make the environmental reporting mandatory instead of voluntary.

In the mid-1990s a trend was developing in the form of a regulatory framework for environmental reporting, even though it mostly consisted of voluntary initiatives. In 1992, the European Commission asked to the FEE (Fédération des Experts Comptable Européen) to produce an environmental-related studies, in order to present them at the Accounting Advisory Forum of European Union. As a result, in 1998 the following standards were reviewed:

- International Accounting Standards 1 (IAS 1), as to include the criteria for material environmental costs disclosure
- International Accounting Standards 16 (IAS 16) on the environmental investments, and imparity testing.
- International Accounting Standards 36 (IAS 36) on the imparity of assets for environmental reasons.
- International Accounting Standards 37 (IAS 37) on the creation of provisions for environmental costs and the environmental risks and uncertainties.

- International Accounting Standards 38 (IAS 38) on the setting of pollution limits, and its tangibility.

In fact, a study done for the European Commission in 1999 (Jones, 1999) concluded that the reporting practices of the member states were not homogeneous, harmonized, and that it would be impossible to compare and analyse the disclosed information by the companies. In order to improve the harmonization of reporting and disclosures, the European Commission issued the Recommendation of the 30th May 2001 on recognition, measurement and disclosure in accounting of environmental issues (2001/453/EC). This recommendation suggested that the member states should adapt their orientations internally, at a national level.

In October 2004, PriceWaterhouseCoopers developed a report that analysed the implementation of such recommendation by several member states. The report concluded that not all the countries adopted the majority of the European Union's recommendations, and in fact no country had fully implemented it, despite the importance of such recommendation. The following table provides an overview of the implementation regarding individual countries, by PriceWaterhouseCoopers (2004):

COUNTRY	RECOGNITION AND MEASUREMENT	ANNUAL REPORT DISCLOSURE	BALANCE SHEET AND NOTES DISCLOSURE	OTHER PLANNED IMPLEMENTATIONS	
				YES	NO
AUSTRIA	V	NO	(V)	X	
BELGIUM	V	NO	V	X	
DENMARK	V	V	(V)		X
FINLAND	V	V	V		X
FRANCE	V	V	V		X
GERMANY	V	NO	NO	X	
GREECE	(V)	NO	NO	X	
IRELAND	(V)	NO	(V)	X	
LUXEMBOURG	NO	NO	NO	X	
PORTUGAL	V	V	V		X
SPAIN	V	NO	V		X
SWEDEN	(V)	NO	NO	X	
NETHERLANDS	(V)	NO	NO	X	
UNITED KINGDOM (UK)	(V)	NO	(V)	X	

Exhibit 2 - Implementation of the EC's Recommendation on the Member States

V=Implemented with respect to national regulation; (V) = Partially implemented; NO=No implementation
Adapted from PwC, 2004

Even though there is no specific international rule for accounting the environmental purposes, they are mentioned on IAS1, IAS12, IAS16, IAS34, IAS37 e IAS38, (IAS - International Accounting Standards) as shown in the following table, and which contributes to improve the transparency and comparability of environmental information on managerial and financial annual reports of companies.

IAS (INTERNATIONAL ACCOUNTING STANDARD)	NRS.	CONTENT
IAS 1 - Presentation of Financial Statements	9	Recommends the publication of additional documents, such as the Sustainability report
IAS 12 - Income Taxes		Makes reference to a specific account for environmental contamination
IAS 16 - Property, Plant and Equipment	11	Acknowledgement of property acquired for environmental reasons (security or legal requirements)
IAS 34 - Interim Financial Reporting	App. C	Makes reference to the use of estimates, the provision for environmental expenses and costs of restoration of locations
IAS 36 - Impairment of Assets	App. C	Loss of assets value for environmental reasons
IAS 37 - Provisions, Contingent Liabilities and Contingent Assets	19 and 21	Recognition as provisions all obligations due to past events, such as cleaning costs of environmental illegal damages
IAS 38 - Intangible Assets		The company may possess intangible assets of an environmental nature, even though it is not obliged to mention it directly.

Exhibit 3 - IAS and the Environment

(Adapted from Eugénio (2004), Monteiro (2004), Pereira *et al.* (2010) and IASB)

Even though the implementation of the IAS was considered a great international improvement, each country generally had its own accounting standards to which they were obliged to comply to. The Portuguese accounting standards were one of the examples which failed to meet the environmental agenda until 2002 and then in 2009.

2.3.8 Portuguese Environmental Regulation

According to KPMG (2011), nowadays, Portugal is disclosing in both quality and quantity, alongside with the Netherlands, France and Australia. However, before 2002, there was no environmental regulation on the Portuguese legislation.

The European Commission's Recommendation, which suggested that the member states should adapt their orientations internally, at a national level, was one of the main motivators for a Portuguese environmental accounting standard creation.

Portugal incorporated environmental issues in its accounting system in 2002, through the Directriz Contabilística nº 29 (DC29) and in 2009, through the Norma Contabilística de Relato Financeiro 26 – Matérias Ambientais (NCRF26). The NCRF26 incorporates, in one single norm, the accounting treatment of the environmental subject with no major changes to DC29.

Even though the DC29 was emitted in 2002, it was transposed only three years later and became mandatory in 2006. The DC29 explains the treatment of the environmental information on financial reports, namely it explains the method of measurement for environmental liabilities, provisions for restoration of contaminated locations, decommissioning costs and long-term environmental liabilities discounts. The DC 29 is structured in eight chapters and two appendixes. The table summarizes its contents:

CHAPTER	NR.	CONTENT
1. Objectives	1-2	Acknowledgment, measurement and disclosure of environmental expenditures, risks and assets
2. Scope	3-5	Individual and consolidated accounts of entities included in the Plano Oficial de Contas (Portuguese accounting standards Framework), meaning, Annual financial reports and Management reports.
3. Context	6-8	Adopting the EC's Recommendation of 30th May 2001
4. Definitions	9-15	Definitions of generic and specific concepts used on the Standard.
5. Recognition;	16-38	Presenting criteria for the recognition of: Environmental liabilities; Contingent environmental liabilities; Compensation of liabilities and expected reimbursements; Capitalization of environmental expenses; and impairment of assets.
6. Measurement of environmental liabilities	39-51	Explains the method of measurement, environmental liabilities, provisions for restoration of contaminated locations and decommissioning costs; long-term environmental liabilities discounts.
7. Disclosures;	52-55	Presents the information to be disclosed: Management Report; Balance Sheet, Annex to the Balance Sheet and Income Statement
8. Entry into	56	Financial years that begin on or after January 1st, 2003
9. Appendix		Definitions of the Statistical Office of the European Union on environmental expenditures.

Exhibit 4 - The DC29 structure
Adapted from Monteiro (2004)

According to the DC29, the company should: Disclose on its Management Report¹⁹ policies and programmes of environmental protection, measures of environmental protection, environmental problems associated to the activity and sector, information on the environmental performance and reference to a separate Sustainability Report.

Also, on the Balance Sheet, the environmental provisions should be presented under “Provisions for risks and charges” (Outras provisões para riscos e encargos).

On the Annex, the Environmental disclosures should be on the notes 48 and 50, under the title “Environmental issues” (Matérias Ambientais). It should include:

- (i) Description of measuring criteria;
- (ii) Public incentives received;
- (iii) Environmental provisions detailed;
- (iv) Environmental liabilities;
- (v) Adopted accounting policy;
- (vi) Environmental costs of the period;
- (vii) Other relevant environmental costs.

The NCRF26 – Matérias Ambientais was published in September 2009, and enters into action in January 2010. It is identical to DC29 in terms of structure and content, although it eliminates the context category and has an additional annex, with an illustrative example, where it adopts the terminology. NCRF26 preserves the recognition and measurement fundamentals of the original standard, but the presentation and disclosure should now be on the Management Report and on the Annexes.

There have been several national studies dedicated to analysing this standard and its implementation effects on a national level. These studies were taken into account while writing this thesis.

¹⁹ The 4th and 7th EU Directives define the Management Report should include: (i) at least one faithful representation of the company’s business evolution, and a description of its major fears and risks; (ii) Aim to the global understanding of the company’s business; (iii) Key indicators of non-financial information; (iv) it should also include reference to the financial information and explanations on that information (Adapted from Directive 2003/51/CE).

2.3.9 *The Portuguese Literature*

Regarding the Portuguese literature, Monteiro and Guzmán (2005) investigate environmental reporting by Portuguese companies namely on how the new accounting standard has influenced companies' practices. They concluded that there has been a significant change since 2002 and 2003 which may be caused by the new standard's implementation. Eugénio (2009) analyses the annual reports and web reporting of Portuguese cement companies over ten years and concludes also that there was a significant change in reporting practices after the implementation of the Portuguese standard *DC29*. Muralha (2001) mentions the growing worry on the environmental issues from the corporate world, and focuses on the European Commission Recommendation, already mentioned. Barrete *et al.* (2002) points out that the corporate environmental responsibility should be verified and confirmed through the analysis of the environmental accounting effects. Carneiro and Veiga (2003) explore the implications of environmental accounting not only on financial accounting but also managerial accounting, and how the internal reporting of environmental information may allow a better decision-making process.

Ferreira (2004) concluded, in its empirical study on environmental reporting in Portugal, that: (i) The environmental issues were becoming a strategic management factor; (ii) the information is being disclosed through voluntary instruments, mostly "self-appreciative"; (iii) There is a lack of accounting information disclosure, which could affect the implementation of the *DC29*.

Duarte and Sarmiento (2004) also conclude that the Portuguese companies are slowly assuming CSR, and that the Management Report is usually the instrument used for environmental reporting, even though some companies already register environmental provisions. Santos (2004) concluded that very few Portuguese companies have environmental accounting systems.

However, the Portuguese literature about the changes that *DC29* might have produced in reporting is scarce and it is not possible to find research about additional changes that could have occurred after the modification of the Portuguese Accounting standards in 2010.

This thesis aims to fill this gap by providing information about the developments that such regulation had on the public transport sector reporting practices.

2.4 The Transport Sector

2.4.1 The importance of the public transport sector

The Public Transport is defined by the International Association of Public Transport (IAPT) as “all transport systems in which the passengers do not travel in their own vehicles. (...) And [it]“is usually regulated as a common carrier and is usually configured to provide scheduled service on fixed routes on a non-reservation basis.” (IAPT, 2012) According to this definition, public transport would include rails, bus services, scheduled ferries, and taxicab services.

The Public Transport development and improvement has been an important priority of many international organizations such as WHO (World Health Organization), OECD, the European Union and, in Portugal, the BCSD Portugal.

The concept of Sustainable development of the transport sector was recognized in 1999 by IAPT, which published the Sustainable Development Letter with a set of commitments to be accomplished by 2005.

According to IAPT (2012), the major benefits of Public Transportation are: (i) lesser costs to the community; (ii) less use of energy; (iii) lower pollution; (iv) safer than the personal vehicle transport; (v) Improves urban and non-urban accessibility; (vi) offers mobility for all; (vii) optimization of urban space.

Despite all these benefits, the Public Transport Sector also has strong environmental impacts that are associated with the transport sector in general.

2.4.2 Major environmental issues

The Transport Sector is currently one of the sectors which most contributes to the energy consumption and production of greenhouse gases in the European Union. In fact, global CO₂ emissions from the transport sector have grown around 45% between 1990 and 2007, and are expected to continue to grow at approximately the same rate until 2030 (OECD, 2010) Amongst other relevant environmental and energy related issues, the transport sector is also one of the main responsible for: localized air pollution, noise, traffic

congestion, visual intrusion, community severance, flora and fauna impacts, greenhouse gas emissions, road killings, and respiratory and cancerous diseases.

MAJOR IMPACTS OF THE TRANSPORT SECTOR COMPANIES

<u>Environmental</u>	<u>Energy</u>	<u>Social</u>
Localized air pollution	Greenhouse Gas emissions	Traffic congestion
Flora and Fauna impacts	Largest Energy Consumer	Noise and Visual Intrusion
Air pollution		Road killings
Global warming		Respiratory and cancerous diseases
		Community intrusion

Exhibit 5 - Major Impacts of the Transport Sector Companies
Adapted from several sources²⁰

Road transport was the largest energy consumer, with more than 25% of the total amount of energy consumed in the EU, in 2004 (EuroSTAT Data, 2004), Followed by air transport, in practically every member state.

Nearly all the energy consumption of the transport sector (98%) is dependent on fossil fuels, which produce CO₂ and other emissions harmful to human health.

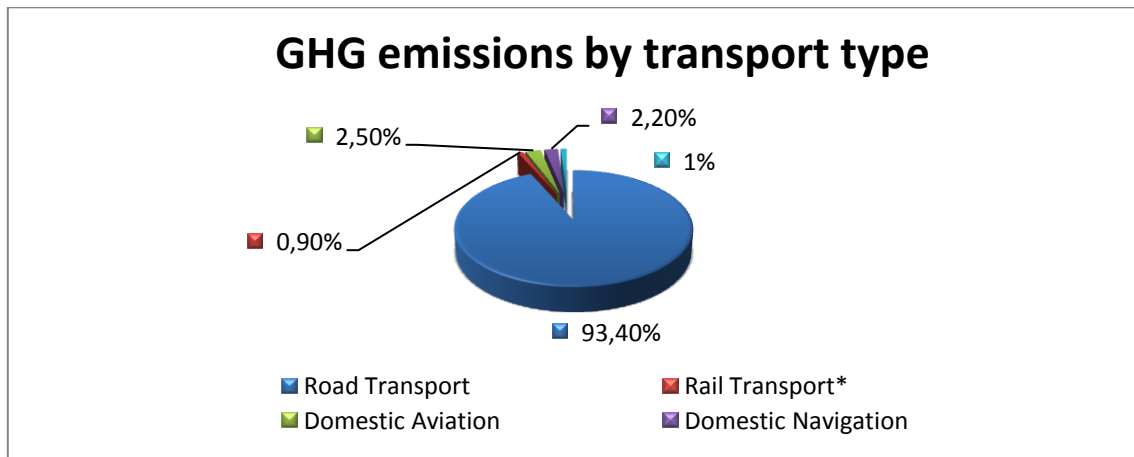


Exhibit 6 - GHG emissions by transport mode, EuroSTAT

*Data cover Diesel (and some coal-powered) trains only; electric traction is therefore excluded

Transport is also the main cause of human exposure to environmental noise. Many transport companies invest in noise reduction policies in order to minimize the environmental damages.

²⁰ EuroSTAT; OECD; EMTA; Sustainability Reports of the Analysed companies.

The UK's Sustainable Development Commission Report, "Fairness in a Car-dependent Society", focuses its study in the dangers of personal vehicle dependency and its disadvantages, as being: (i) the major causes of death for children is being hit by a vehicle; (ii) the primary cause of air and noise pollution is road transport; (iii) increasing congestion; (iv) rising fuel prices; (v) health impact of obesogenic lifestyles; (vi) existing transport patterns contribute to substantial inequalities.

The sector also had a high importance in the Portuguese global energy consumption, as will be developed on the next topic.

2.4.3 The Transport Sector in Portugal

The transport sector is one of the main responsible of the GHG emissions in Portugal, being responsible for 26% of total emissions in 2009 (Relatório do Estado do Ambiente, 2011). Alongside with the energy sector, it constitutes 50% of the total GHG emissions. According to the EUROSTAT the country depends mainly on petroleum, with a very limited part of total energy consumption coming from renewable sources.

EUROSTAT also says that Portugal's transport sector is its main energy consumer, responsible for 38,8% of the consumption of energy in 2002 (of which 87,3% was consumed by roads transport). Also, transport related energy consumption has been rising very strongly in recent years, hence the importance of a transportation policy that will offer higher efficiency levels with less damage to the environment.

Due to the fact that the transport sector is one of the most pollutant sectors in Europe and in Portugal (Relatório do Estado do Ambiente, 2011), this thesis focuses the analysis on the Portuguese public sector companies. The largest companies were selected, each one on their transport type, since previous research indicates this to be a strong indicator of the quantity and quality of environmental disclosures (Adams et al, 1998; Gray *et al.*, 1995). Due to visibility concerns, large companies tend to disclose more information than the smaller ones. Also, these are companies widely recognizable by the Portuguese citizens, since they have a big visibility and these companies usually aim to please the stakeholders.

There are around 122 urban transport companies in Portugal, and they are mainly small regional operators. The major private company is Barraqueiros, with ownership of Rodoviária de Lisboa and Rodoviária da Estremadura. The major public bus companies

are Carris, in Lisbon, STCP in Porto and Horários do Funchal in Madeira. In 2005 the TST was bought from the Barraqueiros Company by a UK bus company. (Barros *et al.*, 2010)

2.4.4 The Four Public Transport Companies- Background information

The chosen representative companies are as follows: Carris, Metropolitano de Lisboa (ML), Comboios de Portugal (CP) and Metro do Porto (MP), chosen due to their size, transport type and location, in order to reach the most diversified sample of the sector.

2.4.4.1 Metropolitano de Lisboa

Metropolitano de Lisboa, (ML) is a public body corporate with legal personality, endowed with administrative and financial autonomy, as well as its own assets. Its mission is to provide a service of Public Transport Passengers as a subway transport type, customer-oriented, promoting sustainable mobility. Having been founded in 1948 and subsequently nationalized in 1975, arrives in 2012 with a wide network of 55 stations over a total length of 43.3 km network.

2.4.4.2 Carris

The mission of CARRIS consists in providing the public transport passenger surface in the urban área of Lisbon. The CARRIS vision takes as its responsibility to insure the economic and social policies in the field of urban mobility, contributing to the development and sustainability of Lisbon and its metropolitan area. It also works on adjusting its business to market needs, optimizing the use of resources in order to increase their business efficiency and continuous improvement of the quality of service it provides. Having an extensive history, it was founded in 1872 and today has a fleet of 752 buses, 57 trams and 4 lifts.

2.4.4.3 CP- Comboios de Portugal, E.P.E.

The CP is, since June 2009, a public company, 100% owned by the Portuguese State. It is the entity responsible for the provision of rail services in domestic and international passengers. In 2011, it carried over 126 million passengers, representing urban trains approximately 70% of total passengers transported. The rail network, in 2012, has 2067 kilometers of total length.

2.4.4.4 *Metro do Porto, S.A*

The Mission of Metro do Porto is to plan, design, construct, equip and operate a Light Rail System in the Porto Metropolitan Area, under a concession awarded by the State. Since its foundation in 1998, it arrived in 2011 with an extensive network of 81 stations with a total length of 67 km network, with a total of 55.7 million successful validations.

2.4.5 *General environmental information on the selected companies*

All of these companies show a very strong environmental concern. They focus on the main environmental concerns of their sector, and of their type of transportation.

- The ML and MP focus on promoting the subways as a “sustainable transport”, since there is less atmospheric pollution, noise, emission of GHG, and accident hazard, amongst others (ML, 2010). It also shows a major concern in reducing its waste, emissions, and many other types of pollution.
- The CP has the same concerns and also about the air quality, and promoting the sustainable ways through marketing and promotional campaigns.
- Carris focuses mostly on the emissions and the quality standards.

All of the companies publish, nowadays, sustainability reports following the GRI approach and some of them are externally audited (ML and CP). All of them have the ISO 14001:2004 and they all have the integrated system of quality and Environment, the NP EN ISO 9001:2000.

3 METHODOLOGY

This thesis aims to:

- 1) Investigate the stage and practices of environmental disclosure of the Portuguese public transport sector companies.**
- 2) Determine the impact of the implementation of the DC29 and the NCRF26 in the reporting practices of the Portuguese public transport companies.**

In order to achieve the aims, it was decided to follow a Case Study methodology approach, since it is the most common methodology used on SEAR, through content analysis of annual reports (Gray *et al.*, 1995a).

Using a Case Study as a Methodology implies to gather quantitative and qualitative data, relying on multiple sources of evidence, and using multiple references (Lamnek, 2005). Another reason to chose a Case Study approach was due to Yin's (2003) arguments that case studies are preferable when the following conditions are in place: (i) "why" or "when" questions are central; (ii) There is a real-life context to the studied event; (iii) the investigator has little or no control over it.

In the case of this thesis, there is no control over the companies' reporting or taking of actions; a real-life context is in place, since these are all actual and ever-changing situations, policies and problems, in the real life of each and every one of the chosen companies.

This thesis intends to analyse the disclosure of environmental information and its development through the analysis of four companies which would represent the public transport sector. The thesis focuses on environmental reporting (voluntary and mandatory), on compliance with environmental regulation and tries to understand if the DC29 has contributed to the information disclosure of those companies.

The annual reports of the companies were analysed from 2003 to 2011. However, a greater detail was given to the following periods: 2004, 2005, 2007 and 2010. These years were selected for the following reasons:

- (i) For allowing a comparative analysis between companies of the segment after and before the implementation of the public accounting standard.
- (ii) In order to perform a more complete analysis, due to more complete quantity of reports on the mentioned years;
- (iii) In order to perform a more intuitive analysis of results on the selective years, since they are a smaller number;
- (iv) Lack of cooperation or response from some of the chosen companies, which did not provide with the necessary documents to perform the complete analysis for the initially selected period.

It is expected, due to prior results on similar studies and thesis, that the general quantity and quality of environmental disclosures will grow after 2006, when the accounting standard *DC29* was definitely implemented.

3.1 Main Goals and Questions

While coming up with the main research questions, in order to reach the main objectives described previously, the line of thought was to answer to “how much, where, how and what” do the public transports companies in Portugal disclosure on environmental aspects.

Therefore this research aims to answer to three Research Questions (RQ) explained below.

RQ 1: Has the quantity of the corporate environmental information increased?

As stated previously, there has been an increase on environmental reporting. It makes sense that also in Portugal there was an increase on the quantity of information disclosure. Besides the *DC29*, there was also the translation of the GRI guidelines in 2002 and then the adaptation of the NCRF in 2010. All these factors, and others, may have been determinants for the development and increase on environmental disclosure on the last decade and, therefore, the analyzed period. (KPMG, 2011)

RQ2: How has the Quality of disclosure evolved in Portugal?

In order to answer to RQ 2, a set of 4 sub questions are set, as described below.

a. Is there more numerical/graphical information or narrative one?

Since the main targets of the reports are the stakeholders, the available information should be easily put, in graphical information and simple tables. It should not be targeted merely to financial experts but to the main audience.

**b. What kind of information do the companies choose to disclose?
What kind of information is more disclosed?**

Besides specific activity-related policies and activities, it is also relevant to analyze areas such as: energy savings, waste management, amongst others, and tracking its evolution. The increasing number and diversity of stakeholders also require an increase on diversity of information and the companies' concerns. It is important to see what the main concerns of the sector are.

c. Which reporting documents do companies use: The voluntary guidelines for reporting? Or do they follow the legal requirements and suggestions, according to the DC 26 and the NCRF 29?

There are many reporting documents available, such as annual reports and sustainability reports. It is therefore important to understand whether the ones referenced on the standard (such as the Annual and the Management Report), are in fact the ones that are being mainly used by the companies, or if the disclosure is being made through other documents and instruments, often voluntary. However several studies show the tendency to disclose most of the information on sustainability reports and other sources of voluntary reporting.

RQ3: Has the DC29 (and afterwards the NCRF 29) produced an increase in the on corporate environmental reporting?

The impacts analysed will be based on the structural concepts of the standard which are the Environmental Protection, Concerns, Measures, Policies, accounting aspects and others which will be described subsequently.

3.2 Data and Methodology

The case study also requires a detailed study of each organization, using different sources and forms of evidence (Larrinaga and Bebbington, 2001). For this thesis, the main analysis sources were the companies' annual and sustainability reports from the available periods.

Nowadays, companies use a wide range of documents to disclosure information to their stakeholders. Even so, the annual report remains one of the most credible ones, essentially due to: (i) its usefulness; (ii) obligation of regularity; (iii) easy accessibility; (iv) coherent, standard and structured information (Kuasirikun and Sherer, 2004). The annual report as a source of the company's information is particularly defended by Gray (1995). The additional documents provided by the companies are also important in order to perform a longitudinal study of disclosures, a point which was strongly defended by Unerman (2000). Usually the method used to analyse such reports is the content analysis method.

3.2.1 Content Analysis

As seen previously, the majority of SEAR studies uses content analysis as a research method. Content analysis consists of codifying qualitative information in literary form into categories in order to derive quantitative scales of varying levels of capacity (O'Donovan, 2002).

Corporate social and environmental disclosure has been strongly increasing; and besides the annual reports, companies have started to disclose information through other sources, specifically the website, newsletters, social and environmental reports, press releases, and videos (Adams and Lang, 2000). Annual reports remain the most widely used documents by researchers (Tilt, 2001; Gray *et al.*, 1995b). Even though the annual report is regarded as a very important instrument of reporting, only the joint analysis of the main companies' available documents will demonstrate the true dimension of the company's reporting status (Unermen, 2000).

Several measurement methods have been used such as Word count (Campbell *et al.*, 2003; Wilhurst and Frost, 2002), sentence count (Branco *et al.*, 2008; Tilt, 2001; Patten, 2002a), line count (Garcia and Larrinaga, 2003; Patten, 2002b), summed page proportions (Adams and Kuasirikun, 2000), between others. Most of the SEA studies follow a mixture of sentence and page count.

Even though the author considered using page count, that was not possible due to the significant differences between page length, font size, line spacing, margins, graphics, etc.; Also, the number of words would lead to an exaggeration of disclosure, since some companies have a very extensive written pattern.

The disclosure will be evaluated in two aspects: The quality and quantity of disclosure. There have been several studies on these aspects (Roberts 1992; Gray *et al.* 1995; Hackston and Milne 1996; Francis *et al.* 2005), and also on the main determinants of the act of disclosure or non-disclosure of voluntary information. Many of these studies were also through the analysis of several companies and comparing the results in a critical way as so to find patterns and similarities and arrive to solid conclusions.

For the quantitative analysis, it was used the summed page proportions methods. For the quality analysis of the annual reports the sentence count was the selected method.

The quality of the disclosure will be based on the DC29 and NCRF26, and what it implies that should be present in the reports. There will also be a brief analysis of the care with the design and the aggregation of environmental information and the structure of the reports, since they are directed to the stakeholders and must have a comprehensible access to it.

On the analysis of the sustainability report, the used count method was not only the sentences but also the graphical and numerical information. Therefore, each graphic was accounted as equivalent to one sentence and when there were tables of information, each line was also accounted as one sentence. This was due to the fact of many reports disclosing much information through numerical figures, which also make the reading and visualization easier for the stakeholders - And should, therefore, be taken into account.

Also, on some cases, the information contained in the annual reports was only a summary of the contents of the annual report. However, all the information is accounted for, in order to value the fact that the companies disclose information on both documents and also follow the indications of the DC29, whereas it says that the existence of a separate report should be mentioned on the annual financial report.

One of the main difficulties was to distinguish the environmental protection information from the generic environmental information. The author created sub-categories in order to ensure the consistency of the data analysis, particularly in these areas.

After analysing all the reports, the documents were reanalysed in order to confirm the correct classification of the information, and reduce subjectivity on the final results. In the thesis there are only the results of the selected years.

The results will therefore be generalized, through a normal average, to the entire sector, and conclusions will be drawn from that analysis in the next chapter.

3.2.2 The Content Analysis Categories

In order to reduce subjectivity, a table was created for the study, containing the used categories of information disclosed. This table will be able to ensure internal consistency and graphical representation of the identified trends.

The table constructed was based on specific information provided by the DC29 and the NCRF26 for the annual reports. For the Sustainability Reports, more categories were added throughout the analysis.

REF. ENVIRONMENTAL CATEGORIES

EC1	1.Environmental Background, Concerns, Benefits, and General information
	1.1. Environmental concerns
	1.2. Environmental benefits associated
	1.3. Sustainable Development
EC2	2. Environmental Investments, Liabilities and Expenditures
EC3	3. Environmental Protection Measures
	3.1. Energy Saving
	3.2. Emissions
	3.3. Environmental Studies
	3.4. Quality Management
	3.5. EP Promotion
	3.6. Pollution Prevention
	3.7. Paper saving
	3,8, Fuel Saving
	3.9. Water Saving
EC5	5. Environmental Policies
	5.1. Certifications (SGA; ISSO 14001:2004;SIQA)
	5.2. Strategies and goals; Risks; Restructuration Plans
EC6	6. Environmental Performance
	6.1. Energy consumption
	6.2. Raw materials consumption (Paper; Steel; etc.)
	6.3. Water consumption
	6.4. Emissions; Air Quality; Electromagnetism; Fuels
	6.5. Waste
	6.6. Evaluation on achieved goals
	6.7. Forest management, Patrimony; Biodiversity
	6.8. Noise

	6.9. Awards and External programs
	6.10. Environmental Indicators
EC7	7. Externally verified report
EC9	9. Annex Disclosure

Exhibit 7 - The Content Analysis Categories

The “EC1 - Environmental Background, Concerns, Benefits, and General information” contains all the sector background information, such as Sustainable Development information, the Kyoto Protocol, the Portuguese action, the benefits of Public Transport, and the major Environmental concerns of the companies.

The “EC2 - Environmental Investments, Liabilities and Expenditures” contains all the environmental information that has been integrated into the Accounting system and is disclosed numerically. Most of the times this information is discriminated only on the sustainability report, not on the Balance Sheet or the annexes.

The “EC3 - Environmental Protection Measures” contains the information related to the company savings such as energy, fuel, water, emissions, and other ways the company has found to protect the environment, in a more active or passive way. It also includes the quality management and the environmental studies. Also included in this category, the Environmental Protection Promotion will include all the campaigns, ads, etc. the companies sponsored to raise awareness amongst the stakeholders regarding the Environmental hazards and issues.

The “EC5 – Environmental Policies” contain the Environmental and Quality Certificates, issued by an external source, and the internal strategies, plans and identified risks of the company.

The “EC6 - Environmental Performance” contains all the information related to the environmental consumption of the companies, such as energy, water and raw materials. It also concerns the issue of emissions and air quality and other information, discriminated on the board. It also records the amount of disclosure on evaluation of achieved goals, and finally the Environmental indicators, when they are represented in the GRI final part of the report. The Awards won by the companies are also represented in this category.

The “EC7 –“Externally verified report” contains all the disclosure on the verified auditing. Whether it has been verified, by whom, and which were the conclusions. The complete report was only found in the 2007th ML’s Sustainability Report.

The “EC 9 – Annex Disclosure” is applicable only to the Annual Reports. It discloses the information which was present on the annex, such as the Standard requires, and that could not be categorized anywhere else, usually related to the environmental accounting.

3.3 The chosen public transport companies

The database from which the analysed companies were taken was from a Portuguese renowned journal of economics (Diário Económico). This database was entitled “As 1000 maiores empresas de Portugal” (“The 1000 Biggest Companies in Portugal”), considering as a criteria the companies’ Turnover. This criterion was chosen due to the fact that larger companies usually disclosure more information than smaller ones (Patten, 2002). Also, as it was already mentioned, due to the fact that this is a highly environmentally-risk sector, there will be a higher concern on performing a detailed and accurate report.

Portugal was the chosen European country for the case study. According to the KPMG’s report (2011), it has been disclosing environmental information on both quantity and quality. Even so, there haven’t been many studies applied to the country or specifically to the public transport sector.

The sample chosen for the case study consists of four Portuguese Public Transport companies, in an attempt to choose both Lisbon and Porto-based companies, and also covering three most common types of public transport: Trains, buses and subways.

These companies all have had a turnover higher than 60.000€, and are widely recognized in the society as the biggest references on public transport. They cover almost all the areas of public transportation as it was previously defined (rails and bus services).

NAME OF THE COMPANY	TYPE OF TRANSPORT	TURNOVER (€)	NET INCOME (€)
CP – Comboios de Portugal	Rails	238.502.999	-195.197.037
Metro do Porto	Rails	159.115.229	-351.790.108
Carris	Bus Services	78.309.109	-42.257.033
Metropolitano de Lisboa	Rails	64.039.465	-148.337.248

Exhibit 8 - The analysed Portuguese Companies

(2010 Data, in Diário Económico 2011, “1000 Bigger Companies in Portugal” Study in Coface Serviços Portugal)

Thus, there was a consultation of the companies' web pages in order to analyse the annual financial reports and sustainability reports on the years of study. Both report types were considered as relevant for the environmental disclosures, in particular due to the little disclosure found in the annual reports of the chosen companies.

The e-mail contact did not aid the collection of documents, since only Metro de Lisboa showed a complete collaboration when it came to ask for annual reports.

It is only important to notice that the qualitative analysis was only made for four years, 2004, 2005, 2007 and 2010, which represent the years with the most available documents from the four companies. Still, due to the lack of available annual reports from some of the companies and the later issues of sustainability reports, these years did not portray the totality of the sample constituted by the four companies.

The author set up a database in order to collect the data from the annual documents, set up in Microsoft Excel, so that statistical association and graphical representations of trends could be put together. In order to assure consistency, there was only one researcher collecting the data. (Campbell *et al.*, 2003)

The years analysed were the first ones available in each of the companies. Initially the study was going to cover all the decade, from the year 2000, but due to the lack of available information on the companies' websites, the analysis is only from the year 2003 onwards. On the Quantitative analysis all the years will be taken into account, but on the Qualitative analysis only a few years – the ones where the information is available for all studied companies – will be taken into account.

Since Carris data was only available from the year 2006 onwards, this makes the first years' data less reliable as sector representatives.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
CARRIS											
Annual Report			✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustainability Report			✓	✓	✓	✓	✓	✓	✓	✓	✓
METRO DO PORTO											
Annual Report			✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustainability Report			✓	✓	✓	✓	✓	✓	✓	✓	✓
CP											
Annual Report			✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustainability Report							✓	✓	✓	✓	
METRO LISBOA											
Annual Report	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustainability Report				✓	✓		✓			✓	

Exhibit 9 - Availability of annual and sustainability reports, by year

During the annual reports analysis, the author had to change the analysis method. The companies were not reporting their final numbers and environmental information on the annual reports. In fact, in many cases, they didn't even make reference to the existence of such report. However, all the chosen companies had very complete and well designed sustainability reports, most of them done by following the GRI initiative framework and guidelines. In order to analyse the complete disclosure, both the report types were analyzed.

The only company that reported as the DC29 required was CP. This company reported all its environmental information on the annex, under "Matérias Ambientais", even when there was an external sustainability report. However, this was only until 2008, where it stopped making reference to the Environmental issues or the existence of an external report.

One of the main difficulties while analysing the reports was deciding whether the information available would be considered as an environment protection measure or merely environmental information. In order to decide this, a checklist was created to follow through on all the companies, to add consistency to the analysis. After analysing all the reports and in order to reduce subjectivity, the information was reanalysed so as to find wrongly classified information.

4 ANALYSIS AND RECOMMENDATIONS

In this chapter, there will be the analysis and discussion of the results from the statistical results, through the direct answering of the case study questions stated previously.

1) Has there been an increase of the corporate environmental information?

In order to evaluate the quantity of reporting, instead of counting the pages, the proportion was taken into account. The reports could not be directly comparable due to the diversity of page size, space between the lines, and letter size. Some of the reports contained information in both English and Portuguese.

As the years went by there is a clear evolution on the sector quantity environmental reporting. The table below (Exhibit 10) summarizes the quantity analysis of the companies' environmental information, calculated through sector average and considering the total number of pages. As can be seen on the table, the average of reported proportion has increased during the years.

SECTOR AVERAGE	2004	2005	2006	2007	2008	2009	2010	2011
Annual Report								
Number of Total pages	99	112	92	95	122	99	151	170
Proportion of Environmental pages	1%	1%	1%	2%	1%	3%	3%	4%
Sustainability Report								
Number of Total pages	141	178	85	96	64	42	63	91
Proportion of Environmental pages	20%	16%	18%	23%	11%	13%	23%	16%

Exhibit 10 - Quantity analysis of the companies' environmental information (Sector average, nr of pages)

And below is the visual representation of the quantity analysis expressed above, easier to analyse.

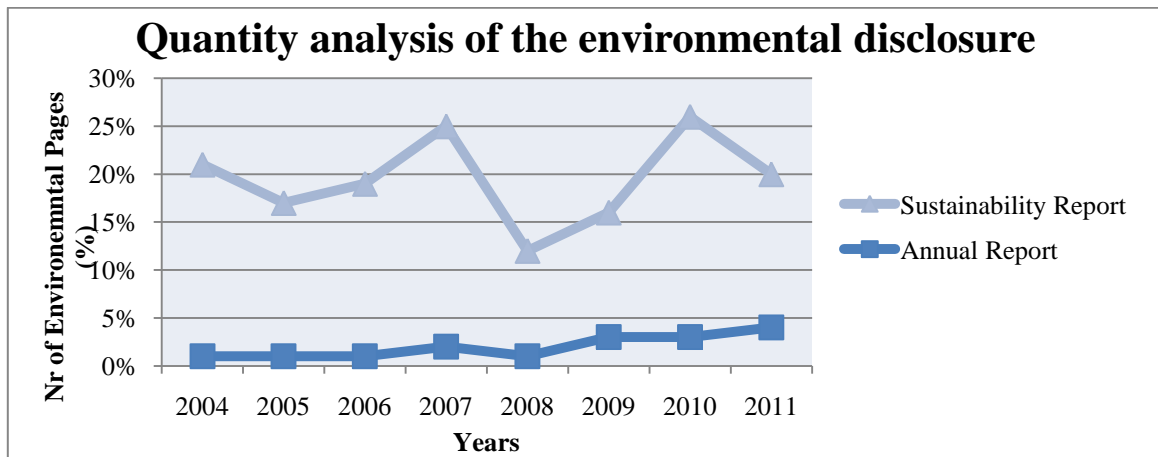


Exhibit 11 - Quantity graphical analysis of the companies' environmental information disclosure

It is important to mention that, even though the number of pages decreased in 2008 and 2009, this was brought by a general change in the report format (decrease of font size, increase of page length) which led to a very different average. This change affected mostly the ML report, which decreased nearly 50% of its size. This is why the reliability should be more on the percentage of environmental dedicated pages and not the its total number.

Also, the numbers of environmental reports for the first two years are only available at ML, since it was the only company of the studied which had an environmental report. The decrease in the number of pages in 2008 and 2009 is due to the fact that the ML did not produce its sustainability report (SR) on those years. Also due to the fact that ML does not produce their SR annually, it contains more environmental proportion and also the average of the sector in the reported years.

- *The quantity of sustainable information present on the companies' reports was variable throughout the analysed years.*
- *It is not possible to say that there has been a significant increase of information during those same years.*

2) How has the Quality of disclosure evolved in the Portuguese Public Transports sector?

For this part of the content analysis separate tables were used, based on the information available in the Annual and Sustainability Reports (AR and SR, respectively). Exhibits 12 and 13 below express the quality analysis of, respectively, the Annual and Sustainability Reports, already with the average of the sector.

ANNUAL REPORTS QUALITY ANALYSIS		2004	2005	2007	2010
EC1	1.Environmental Background and Concerns	0	28	0,5	3,5
EC2	2. Environmental Investments, Liabilities and Expenditures	0,5	0,5	0,25	0,25
EC3	3. Environmental Protection Measures	2	0	14,5	12,75
EC5	5. Environmental Policies	4	8	6,25	22,75
EC6	6. Environmental Performance	0	1,5	0	2
EC9	9. Annex disclosure	2			
	TOTAL	8,5	40,5	22	41,25

Exhibit 12 - Quantity analysis of the companies' AR environmental information (Sector average, nr. of sentences)

SUSTAINABILITY REPORTS QUALITY ANALYSIS		2004	2005	2007	2010
EC1	1.Environmental Background and concerns	78	47	44,75	9,5
EC2	2. Environmental Investments, Liabilities and Expenditures	9	26	9,75	2,25
EC3	3. Environmental Protection Measures	11	35	69,25	16,5
EC5	5. Environmental Policies	11	19	27,75	4,25
EC6	6. Environmental Performance	93	122	259	82
EC7	7. Externally verified report	0	0	5	1,25
TOTAL		202	249	415,5	115,75

Exhibit 13 - Quantity analysis of the companies' SR environmental information (Sector average, nr. of sentences)

a. Is there more numerical/graphical information or narrative one?

While analysing the Sustainability reports, it was possible to understand that there was a clear distinction between numerical/graphical information and the narrative information, as expressed on Exhibit 14 below.

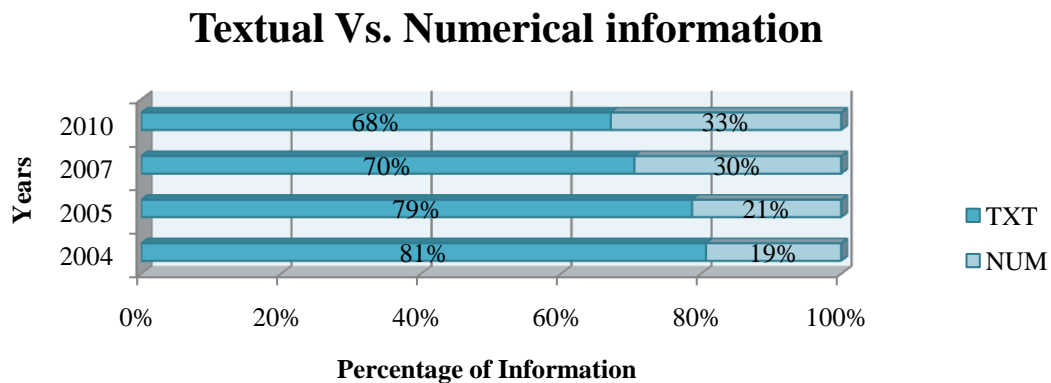


Exhibit 14 - Textual ad numerical information analysis on the Reports

- *There is a tendency of growth of the numerical and graphical information, growing from 19% to 33% in only 6 years.*
- *Throughout the years, there was always more narrative than numerical and graphical information.*

b. What kind of information do companies choose to disclose? Which of the environmental categories are more disclosed and which are less?

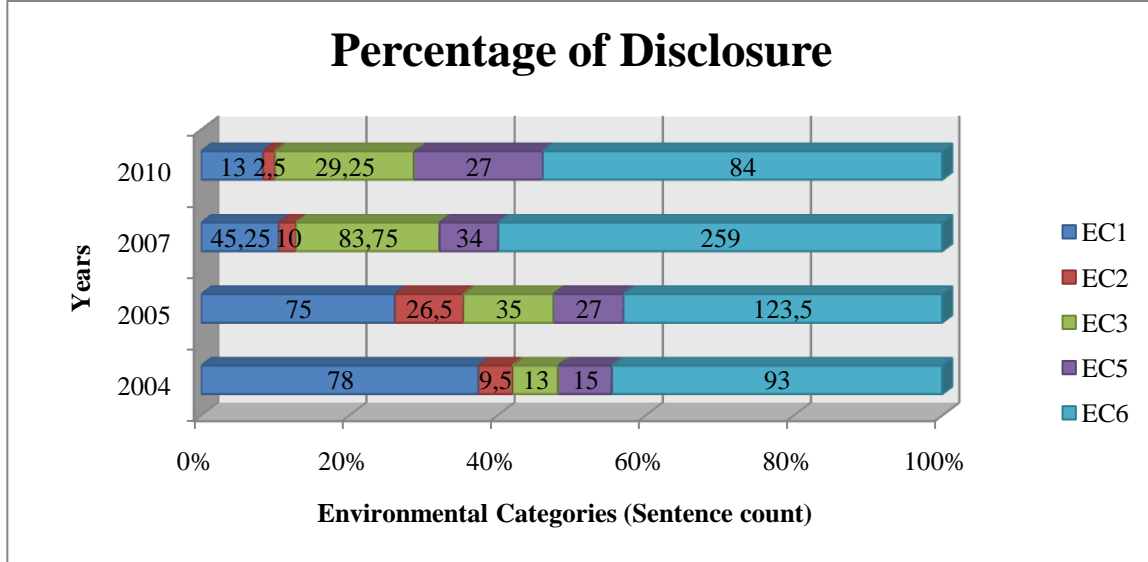


Exhibit 15 - Percentage of environmental disclosure by Environmental Category and years

The EC6 category is the more disclosed category. Since it focuses more closely on the company’s environmental performance and indicators, it is natural that the companies choose to disclose as much as possible. It seems important to show results on previously set environmental goals, or to set quantifiable goals for the upcoming years. The Environmental indicators also always have a high relevance, since they are quantified on the end of the report and have been considered good indicators, since they are easily comparable between companies which use the same sustainability reporting framework. In this category are also the awards won by the company.

The EC1 category comes next, exposing the general information on the environment. This information is not specific to the companies, but for the sector and sometimes even on the country’s actions on the environment. It is about the Kyoto Protocol, the sustainable development and the environmental benefits and concerns of the transports sector. There is a difference between the first and the last analysed years. In 2010, there are only 13 sentences on the referred subjects.

Even though they are not graphically represented, the EC7 and EC9 tell us something. With them we learn that the DC29 and the NCRF26 are not being followed: Only the ML has in its SR the external environmental certification from Pwc. This may imply that the

companies are not worried with transmitting credibility on their disclosed environmental information.

Also, the EC2 – Environmental Liabilities and Environmental Accounting-related disclosures – is one of the lowest percentages (seconded only by EC7).

- *The companies disclose around 40% of their information concerning Environmental Performance in 2005 and up to 60% in 2010.*
- *The EC2, concerning the companies’ Liabilities and Accounting-related disclosures, is always the less disclosed type of information.*

c. Which reporting documents do the companies prefer: The voluntary? Or do they follow the legal requirements and suggestions, according to the DC 26 and the NCRF 29?

The majority of the SR was built by following the GRI Framework, or a voluntary reporting standard. Over the years, there has always been a clear tendency to produce sustainability reports. These reports have been the preferred means of reporting of many companies, as explained previously. The Exhibit 16 below shows that the selected companies disclose over 95% on the first years on their SR, and less than 5% on their AR. In 2010, this percentage grows to almost 25%, which may e considered great improvement in the direction of the DC29 recommendations.

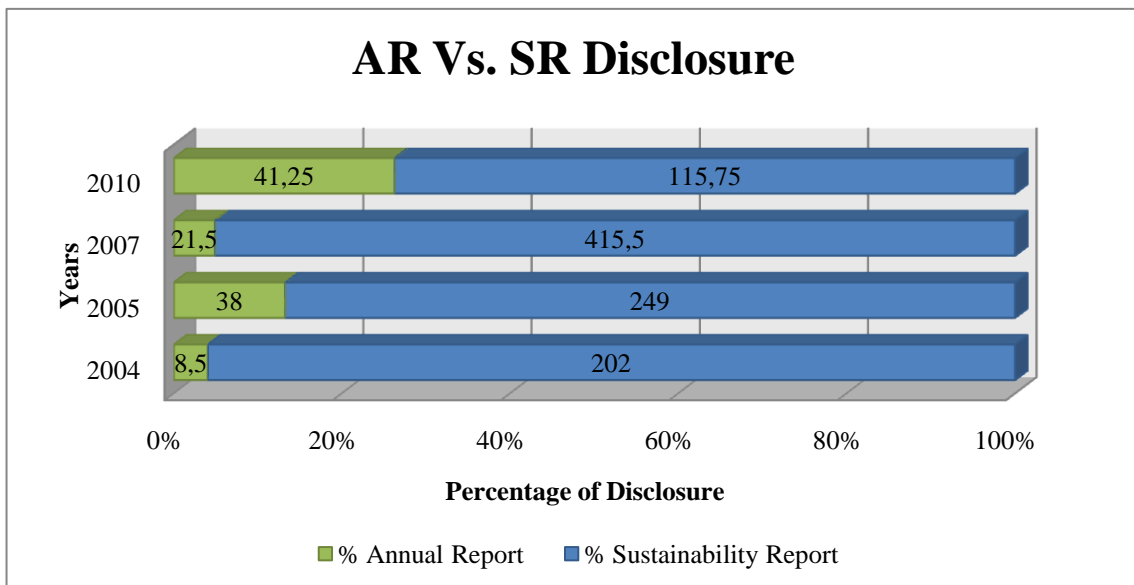


Exhibit 16 - Average Percentage of the Sector Environmental disclosure in AR and SR

There were many aspects of DC29 and NCRF26 which are not disclosed by companies. In all the companies, there is little or no disclosure on the Balance Sheet or in the Annex (even when there is a clear reference to environmental expenditures). Also, even though the existence of an autonomous report should be mentioned in the Annual report, that isn't always the case and some companies do not even mention a sustainability report. In fact, the Metro Sustainability reports are very complete and accurate, however they barely mention environmental information in the annual report (There is barely 1% of environmental disclosure in the annual reports). In the Carris reports, the environmental information disclosed in the annual reports is mostly a summary of the Sustainability reports.

One interesting fact is the launch of the Portuguese version of the GRI guidelines, on November 2004. This may have contributed to the increase of the sustainability reports for the year 2007 (when the companies had time to adapt and change their sustainability approaches).

- *In 2010, almost 80% of the environmental information is reported on the SR and all of the companies have Sustainability Reports.*
- *The companies prefer the Sustainability Report to report their environmental data, even though the legal requirements and suggestions all appoint the Annual Report as the preferred one.*

d. Which companies disclosed more?

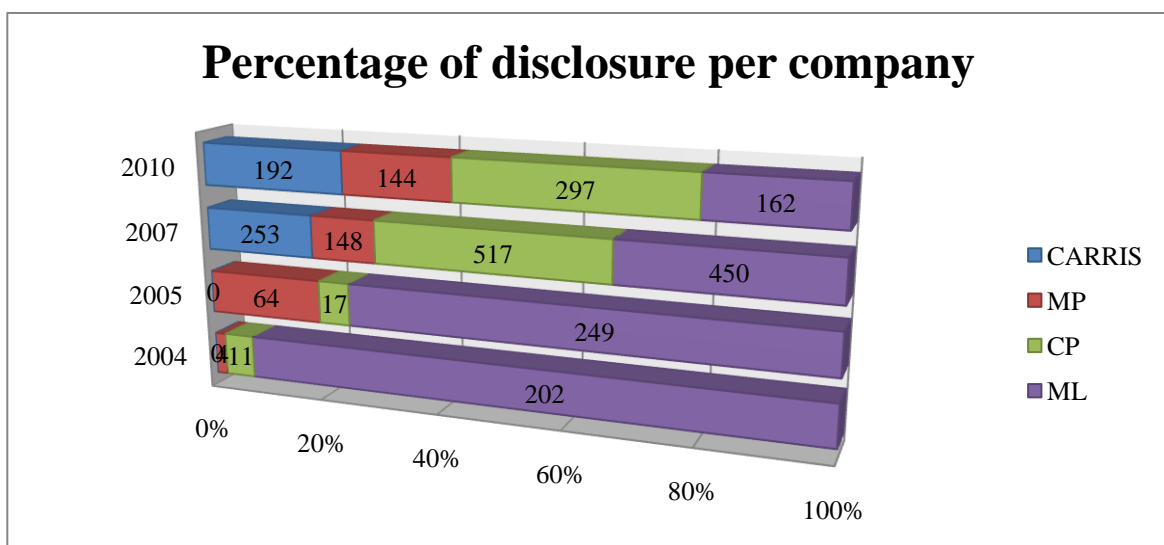


Exhibit 17 - Percentage of Environmental Disclosure by Company and Year

Only after 2005 did the four companies disclosed their information in equal proportions; In 2004 and 2005, practically all the analysed environmental information disclosed is from ML, the only one of the four companies which had a sustainability report.

This influences highly the results, since the first two years of analysis were almost fully dependent of the ML Sustainability reports. It also indicates that the remaining companies only started to disclose from 2007 onwards.

- *Metropolitano de Lisboa was the company which disclosed more during the years of 2004 and 2005. In 2007 and 2010 however, CP disclosed a bit more than Metropolitano de Lisboa.*

3) **Has the DC29 (and afterwards the NCRF 29) produced a significant impact on the Portuguese corporate environmental reporting?**

Foremost, and for the purpose of this thesis, the author has considered, as a significant impact, one over 50% of improvement on the quality and quantity of reported information, since the publication of the Standard.

Considering the data results, the only company which properly followed the Standard guidelines was CP - and it stopped doing so over the last couple of years. The other companies used, on all the analysed years, the sustainability reports to disclose their environmental information, instead of the Annual Reports. Also, there is little mention to Environmental Accounting, or even environmental costs. The only environmental costs mentioned are those justifiable on the regular accounting systems, which hold no importance when it comes to investigate the influence of the DC29.

Even so, there has been a significant change in the sector disclosures (particularly, in the proportion of disclosure between companies) from the year 2007, which may be related to the publication of the DC29.

- *We can conclude that the DC29 has not produced a significant impact on the Portuguese corporate environmental reporting – The companies did disclose in a larger quantity, however not in accordance with the DC29 recommendations.*

5 CONCLUSION

This thesis focused on the environmental disclosures on the Portuguese public transports sector. It was meant to analyse them, on both quantity and quality, and to observe their behaviour after the publication of the Portuguese accounting environmental standard DC29.

After an extensive literature review on SEAR antecedents, a gap was identified referring to the Portuguese transports sector. This case study meant to evaluate the stage of disclosure in Portugal, particularly for the years of 2004, 2005, 2007 and 2010, on the questions “How much, where, how, what” do the sector find more important and relevant to disclosure.

A case study methodology was employed in order to study the sector’s behaviour towards environmental regulation. It is also important to mention that this thesis underlines legitimacy theory. It aims to confirm whether legitimacy theory explains the sector’s environmental disclosures, exploring the regulation substitute. As relevant regulations the author considered the DC29 and the NCRF26, part of the Portuguese accounting standards and which the companies follow throughout their Accounting process.

The following conclusions were drawn from the content analysis:

- 1- The quantity of sustainable information presented on the companies’ reports was variable throughout the analysed years; however we can say that generally the environmental information grew, along and in the same proportion of the rest of the general information related to other aspects of the companies’ business and financial statements.
- 2- a) There has been an increase of numerical (or graphical) information. This may be seen as a positive evolution through comparability of data between companies which follow the same type of guidelines in order to disclose their environmental information. The fact that the companies are choosing to use more numerical information may also indicate a higher reliability of the disclosed data. The use of graphical information makes it easier for the stakeholders to interpret and draw conclusions from the reports.

b) Most of the information disclosed by the analysed companies is related to their Environmental Performance, followed by general information on the Environment. The less disclosed information is related to the companies' Liabilities and Accounting-related disclosures, several times inexistent and rarely following the DC29 recommendations.

c) Also, in the last analysed year, almost 80% of the environmental information was reported on the SR – leaving the AR with 20% of the total environmental disclosures. A possible conclusion is that the companies, since they have a SR, choose to report the relevant environmental information mostly there.

d) In the first two years of the analysis, Metropolitano de Lisboa was, without a doubt, the company which contributed the most to the results. In 2010 however there was a clear balanced disclosure amongst the four companies.

- 3-** As for the significant impact caused by the Transposition of the EC's Recommendation, the conclusion is that, there wasn't a clear one – They did not change their behaviour in order to have everything as the Standard outlined. Even though the companies disclosed more on the last years, they did not disclose accordingly to it.

The EC Recommendation was transposed into the DC29 in 2003, but its publishing on the official accounting standards was only in 2005 – So it was only considered as “in force” for the exercises after 2006.

With the appearance of the voluntary TBL reports usually referred to as sustainability reports, many Portuguese companies adopted the voluntary reporting guidelines known as GRI, as did many companies at an international level. Also, when it comes to the evolution of the disclosures, they have clearly started to improve their quantitative information, adding value to the textual and descriptive information.

The disclosed information, even though it has improved in both quantity and quality, has not yet been sufficient and complete: The companies do not follow the existing legislation, and therefore their contribution for the evolution of Environmental Accounting is limited. In fact, in order to increase their legitimacy, companies should increase their disclosure on Environmental Protection Matters, External Auditing, Annex Disclosure and Environmental Costs in Environmental Accounting. We can also conclude that, due to the small (or on most of the companies, non-existent) amount of disclosure on the annex,

balance sheet, or the management report, that the DC29 had little or no effect on the Portuguese public sector disclosures.

Therefore we can say that this it is not their motivation to disclose their environmental information, refuting the Legitimacy Theory as applicable to this particular sector and European country.

However, the progress seen associated with the publication of voluntary reports sustainability reports, can be interpreted as an important milestone for the evolution of environmental disclosure in Portugal - Particularly since these are not listed companies and are not under as much media pressure as they are.

Limitations and future research

Some factors have limited the thesis' results. Such as:

- i) *The companies are not representative, in number, of the Portuguese sector.*

Four companies are not representative of a whole sector. No matter how big the companies were, the more, the better. Therefore a follow-up study could include other public transport companies. However, it can be testified that these were the most representative due to the fact that these are the most prominent of the sector. Perhaps a future research will include the analysis the TST, REFER, SCTP, and other prominent Portuguese companies.

- ii) *The data collected and document analysis was done over a short period of time*

The author worked only with the available information on the companies' websites. Even though there was an introductory contact with the companies, not all of them complied with the request, which made the majority of the years very unstable for suitable comparisons. However, since the implementation of the Portuguese accounting standard was only on 2005, there was no reason to study so thoroughly the previous years except to perform a comparative analysis. Due to the given results, in which many of the companies did not make any mention to the environment, this would probably conduct the same results. This short period of analysis should inspire some prudence on drawing conclusions from this paper. It would be interesting to conduct the same study on a bigger number of years.

iii) The transport sector is one of the sectors which discloses the less environmental information, according to the KPMG report (KPMG, 2008)

In fact, as seen previously, it was expected that these results were less exciting than other studies. But this was already expected. The study was made on that exact premise: That this sector, despite described as not very advanced on reporting, should be studied and evaluated due to its high environmental impact. This is in fact a sector that should be studied more, and companies should report more, more consistently and more accurately and according to their local legislation.

iv) Portugal is amongst the smallest European countries

It would be very interesting, to make a study on several companies around Europe, in countries where the EC's recommendation was transposed, and study the results in a more extensive way. However, that was not the goal of this thesis, and the fact that the chosen country was of smaller dimensions limited the results and also the following analysis.

v) The lack of balance between the companies' disclosures

The fact that some companies' disclosures (namely the Metropolitano de Lisboa) represented a large part of the analysed environmental disclosure, makes the results of two of the years limited in order to perform a proper analysis of the sector. However, this inequality amongst four of the biggest companies of the sector also tells us that the disclosure processes are not yet incorporated in the Portuguese companies' strategies.

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7 APPENDIXES

1- Analysed Companies Annual and Sustainability Reports - Quantity Analysis – Page count, by year

	2004	2005	2006	2007	2008	2009	2010	2011
CARRIS								
Annual Report								
Number of Total pages	0	0	82	114	124	142	167	177
(%) Environmental pages			1%	4%	5%	4%	5%	3%
Sustainability Report								
Number of Total pages			61	62	64	68	40	91
(%) Environmental pages			15%	11%	11%	13%	15%	16%
METRO PORTO								
Annual Report								
Number of Total pages	80	112	106	95	120	53	73	-
(%) Environmental pages	1%	1%	1%	1%	1%	2%	1%	
Sustainability Report								
Number of Total pages	-	-	108	61	78	42	38	-
(%) Environmental pages			21%	25%	15%	21%	24%	
CP								
Annual Report								
Number of Total pages	99	99	59	59	98	65	152	0
(%) Environmental pages	1%	1%	5%	7%	2%	6%	5%	
Sustainability Report								
Number of Total pages	0	0	0	129	0	0	160	0
(%) Environmental pages				22%			23%	
METROPOLITANO LISBOA								
Annual Report								
Number of Total pages	164	164	101	95	145	132	150	162
(%) Environmental pages	0%	0%	1%	1%	1%	2%	1%	4%
Sustainability Report								
Number of Total pages	141	178	-	166	-	-	85	-
(%) Environmental pages	20%	16%		24%			25%	

Exhibit 18- Annual and Sustainability Reports - Quantity Analysis – Page count, by year

2- Sustainability Reports' Analysis by categories – Carris and Metro Porto

		Carris						Metro Porto					
		2007			2010			2007			2010		
		T	N	TOTAL	T	N	TOTAL	T	N	TOTAL	T	N	TOTAL
EC1	1.Environmental Background and Concerns	0	0	0	0	0	0	30	2	32	5	7	12
EC1	1.1. Environmental Concerns			0			0			0			0
EC1	1.2. Environmental Benefits Associated			0			0	4	2	6	5	7	12
EC1	1.3. Sustainable Development			0			0	10		10			0
EC2	2. Environmental Investments, Liabilities and Expenditures							6		6			0
EC3	3. Environmental Protection Measures	14	0	14	17	0	17	0	0	0	21	0	21
EC3	3.1. Energy Saving			0	12		12			0			0
EC3	3.2. Emissions			0			0			0			0
EC3	3.3. Environmental Studies			0			0			0	10		10
EC3	3.4. Quality Management	14		14	5		5			0	11		11
EC3	3.5. EP Promotion			0			0			0			0
EC3	3.6. Pollution Prevention									0			0
EC3	3.7. Paper Saving									0			0
EC3	3,8. Fuel Saving												
EC3	3.9. Water Saving												
EC5	5. Environmental Policies	25	38	63	2	0	2	0	0		5	0	
EC5	5.1. Certifications	24		24	2		2			0	5		5
EC5	5.2. Strategies and Goals; Risks; Reestructuration Plans												
EC6	6. Environmental Performance	90	31	121	48	63	111	64	33	97	69	31	100
EC6	6.1. Energy Consumption	12		12	12		12	14	5	19	7	4	11
EC6	6.2. Raw Materials Consumption	10		10	14		14	7	6	13	7	5	12
EC6	6.3. Water Consumption	11	1	12	5	1	6	4	1	5	3	1	4
EC6	6.4. Emissions; Air Quality;	7		7	3		3	15	3	18	29	6	
EC6	6.5. Waste	8		8	4		4	13	4	17	10	4	14
EC6	6.6. Evaluation on Achieved Goals			0			0			0			0
EC6	6.7. Forest Management~, Patrimony; Biodiversity	22	2	24	5	1	6	3		3	11		
EC6	6.8. Noise	6		6	3		3	7		7			
EC6	6.9. Awards and External Programs			0			0			0			
EC6	6.10. Environmental Indicators	14	28	42		61	61	1	14	15	2	11	13
	TOTAL	129	69	198	67	63	130	100	35	135	100	38	133
		65%	35%	100%	52%	48%	100%	74%	26%	100%	75%	29%	100%

Exhibit 19 - Sustainability Reports' Analysis By Categories – Carris And Metro Porto

3- Sustainability Reports' Analysis by categories – CP

		CP					
		2007			2010		
		TXT	NUM	TOTAL	TXT	NUM	TOTAL
EC1	1.Environmental Background and Concerns	23	4	27	5	1	6
EC1	1.1. Environmental Concerns	8		8			0
EC1	1.2. Environmental Benefits Associated	9	4	13	5	1	6
EC1	1.3. Sustainable Development	6		6			0
EC2	2. Environmental Investments, Liabilities and Expenditures	1	5	6	4	2	6
EC3	3. Environmental Protection Measures	166	89	255	8	0	8
EC3	3.1. Energy Saving	42	39	81	2		2
EC3	3.2. Emissions	24	16	40			0
EC3	3.3. Environmental Studies			0			0
EC3	3.4. Quality Management	10		10			0
EC3	3.5. EP Promotion			0			0
EC3	3.6. Pollution Prevention	65	29	94	6		6
EC3	3.7. Paper Saving			0			0
EC3	3,8, Fuel Saving	9		9			0
EC3	3.9. Water Saving	16	5	21			0
EC5	5. Environmental Policies	36	0	36	0	0	0
EC5	5.1. Certifications (SGA; ISSO 14001:2004;SIQA)	30		30			0
EC5	5.2. Strategies and Goals; Risks; Reestructuration Plans	6		6			0
EC6	6. Environmental Performance	31	146	177	64	138	202
EC6	6.1. Energy Consumption	5	17	22	13	25	38
EC6	6.2. Raw Materials Consumption (Paper; Steel;etc.)		21	21	12	36	48
EC6	6.3. Water Consumption		2	2	1	1	2
EC6	6.4. Emissions; Air Quality; Electromagnetism; Fuels	1	30	31	10	30	40
EC6	6.5. Waste			0	2	46	48
EC6	6.6. Evaluation on Achieved Goals			0	8		8
EC6	6.7. Forest Management~, Patrimony; Biodiversity	9		9	13		13
EC6	6.8. Noise			0			0
EC6	6.9. Awards and External Programs	12		12	5		5
EC6	6.10. Environmental Indicators	4	55	59			0
EC7	7. Externaly Verified Report			0	2	3	5
	TOTAL	257	244	501	83	144	227
		51%	49%	100%	37%	63%	100%

Exhibit 20 - Sustainability Reports' Analysis By Categories – CP

4- Sustainability Reports' Analysis by categories – Metropolitano de Lisboa

		Metropolitano de Lisboa											
		2004			2005			2007			2010		
		TXT	NUM	TOTAL	TXT	NUM	TOTAL	TXT	NUM	TOTAL	TXT	NUM	TOTAL
EC1	1.Environmental Background and Concerns	78	0	78	47	0	47	111	9	120	20	0	20
EC1	1.1. Environmental Concerns	8		8	11		11	6		6	11		11
EC1	1.2. Environmental Benefits Associated	15		15	10		10	30	4	34	1		1
EC1	1.3. Sustainable Development	55		55	26		26	75	5	80	8		8
EC2	2. Environmental Investments, Liabilities and Expenditures	3	6	9	17	9	26	13	14	27	2	1	3
EC3	3. Environmental Protection Measures	11	0	11	35	0	35	2	6	8	20	0	20
EC4	3.1. Energy Saving			0	3		3			0	20		20
EC5	3.2. Emissions			0	4		4			0			0
EC6	3.3. Environmental Studies	9		9	11		11	2		2			0
EC7	3.4. Quality Management			0			0			0			0
EC8	3.5. EP Promotion	1		1	4		4			0			0
EC9	3.6. Pollution Prevention	1		1	1		1			0			0
EC10	3.7. Paper Saving			0	10		10			0			0
EC11	3,8, Fuel Saving			0	2		2			0			0
EC12	3.9. Water Saving			0			0			0			0
EC5	5. Environmental Policies	11	0	11	19	0	19	12	0	12	15	0	15
EC5	5.1. Certifications (SGA; ISSO 14001:2004;SIQA)	1		1	3		3	2		2			0
EC5	5.2. Strategies and Goals; Risks; Reestructuration Plans	10		10	8		8	10		10	15		15
EC5	6. Environmental Performance	60	33	93	78	44	122	178	81	259	47	35	82
EC5	6.1. Energy Consumption	13	17	30	5	9	14	43	8	51	5	11	16
EC5	6.2. Raw materials Consumption (Paper; steel;etc.)	3	4	7	5	3	8	23	17	40	13	11	24
EC6	6.3. Water Consumption	14	12	26	3	13	16	8	14	22	2	1	3
EC6	6.4. Emissions; Air Quality; Electromagnetism; Fuels	19		19	31	7	38	55	17	72	3	10	13
EC6	6.5. Waste			0	19	12	31	19	25	44	10	2	12
EC6	6.6. Evaluation on Achieved Goals			0			0			0			0
EC6	6.7. Forest Management, Patrimony; Biodiversity			0			0			0			0
EC6	6.8. Noise	11		11	9		9			0			0
EC6	6.9. Awards and External Programs												
EC6	6.10. Environmental Indicators			0			0			0	14		14
EC6	7. Externaly Verified Report			0			0	20		20			0
	TOTAL	163	39	202	196	53	249	336	110	446	104	36	140
		81%	19%	100%	79%	21%	100%	75%	25%	100%	74%	8%	31%

Exhibit 21 - Sustainability Reports' Analysis by categories – Metropolitano de Lisboa

5- Annual Reports' Analysis by categories – Sector Average

0	SECTOR AVERAGE	2004			2005			2007			2010		
		TXT	NUM	TOTAL	TXT	NUM	TOTAL	TXT	NUM	TOTAL	TXT	NUM	TOTAL
EC1	1.Environmental Background and Concerns	78	0	78	47	0	47	41	3,75	44,75	7,5	2	9,5
EC2	2. Environmental Investments, Liabilities and Expenditures	3	6	9	17	9	26	5	4,75	9,75	1,5	0,75	2,25
EC3	3. Environmental Protection Measures	11	0	11	35	0	35	45,5	23,75	69,25	16,5	0	16,5
EC5	5. Environmental Policies	11	0	11	19	0	19	18,25	9,5	27,75	5,5	0	4,25
EC5	6. Environmental Performance	60	33	93	78	44	122	178	81	259	47	35	82
EC7	7. Externaly Verified Report	0	0	0	0	0	0	5	0	5	0,5	0,75	1,25
	TOTAL	163	39	202	196	53	249	292,75	122,75	415,5	78,5	38,5	115,75

Exhibit 22 - Annual Reports' Analysis by categories – Sector Average

6- Annual reports of the selected companies by categories

	Annual reports	CP				Metro do Porto				CARRIS				Metro lisboa				2005	2007	2010	Total
		2004	2005	2007	2010	2004	2005	2007	2010	2004	2005	2007	2010	2004	2005	2007	2010				
						NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
EC1	1.Environmental Background and Concerns	0	2	1	2	0	54	0	8	0	0	0	0	0	0	1	4	28	0,5	3,5	72
EC1	1.1. Environmental Concerns		2													2	1	0	0,5	4	
	1.2. Environmental Benefits Associated						29								1		14,5	0,25	0	30	
EC1	1.3. Sustainable Development						25		8							2	12,5	0	2,5	35	
EC2	2. Environmental Investments, Liabilities and Expenditures	1	1	1					1								0,5	0,25	0,25	4	
EC3	3. Environmental Protection Measures	0	0	0	12	4	0	10	1	0	0	48	30	0	0	0	8	0	14,5	12,75	113
EC3	3.1. Energy Saving				6			1				2				1	0	0,75	1,75	10	
EC3	3.2. Emissions							5	1								0	1,25	0,25	6	
EC3	3.3. Environmental Studies					4		4									0	1	0	8	
EC3	3.5. EP Promotion				3							27				1	0	6,75	1	31	
EC3	3.6. Pollution Prevention												10				0	0	2,5	10	
EC5	5. Environmental Policies	8	6	12	56	0	10	3	1	0	0	7	25	0	0	3	9	8	6,25	22,75	140
EC5	5.1. Certifications (SGA; ISSO 14001:2004;SIQA)		2	11	28		10	1	1			1	9			3	3	6	4	10,25	69
EC5	5.2. Strategies and goals; Risks; Reestructuration Plans				19							6	16				5	0	1,5	10	46
EC5	5.4. Sustainability Report		1	1				2									0,5	0,75	0	4	
EC6	6. Environmental Performance	0	3	0	0	0	0	0	0	0	0	0	7	0	0	0	1	1,5	0	2	11
EC6	6.6. Evaluation on Achieved Goals												7				1	0	0	2	8
EC7	6.10. Environmental Indicators		3														1,5	0	0	3	
EC9	9. Annex Disclosure	2	2	2													1	0,5	0	6	
	TOTAL	11	17	16	70	4	64	13	11	0	0	55	62	0	0	4	22	40,5	22	41,25	349

Exhibit 23 - Annual reports of the selected companies by categories