

Environmental Information in the Annual Accounts

Year: 2017/2018

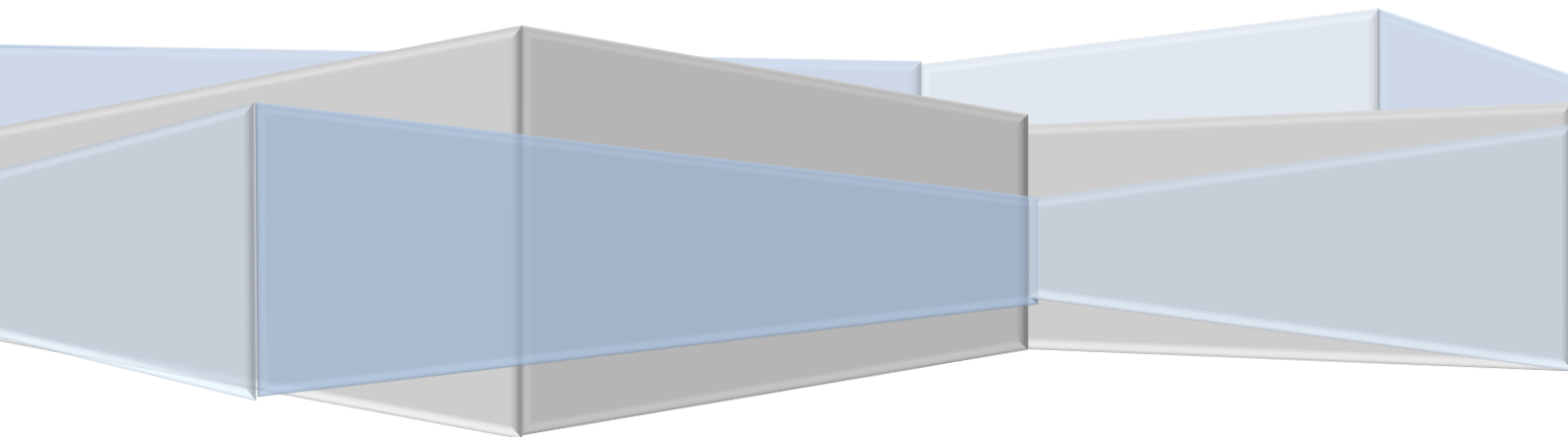
In this Project, an analysis about the quantity and quality of the environmental information that appears in the annual accounts of the ten most polluting companies will be realized.

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1.-Introduction

This project will concentrate on an investigation about the environmental information presented by the ten most contaminating companies in Spain. It means that the quantity and quality of the provided information will be investigated.

At the beginning, a revision about the conceptual frameworks of the environmental information will be done, in other words, the importance of that information, both, for the companies and the interest groups. It will be shown why there is a lack of information's presentation in environmental matters and the types of environmental information.

Later, it will be presented the evolution in the legislation of the environmental information from beginning until now, both, international and Spanish. The focus will be on the Spanish one and, especially in the resolution of the ICAC from the 25th of March on 2002, due to the fact that it is the most important in reference to environmental field. Moreover, explicit attention will be also paid in the PGC approved by the real Decree 1514/2007 from the 6th of November, because it covers part of the resolution's norms from ICAC.

Afterwards, the justification of the project will be explained, it will be based in an article published in the Economist in 2017, in order to know which of the ten Spanish companies are the most polluting ones, separated by sectors, and it will be shown that it exists an ascendant evolution on the emissions in Spain.

The main objective of this study will be: to determine the quantity and quality of the environmental information provided by these ten companies in the annual accounts; to check if the quantity and quality of the information varies by sectors; and to see if there is a relationship between the given information with the position this companies have in terms of pollution.

In order to achieve this objective, the information relate to each company will be analysed. The studio will be done with different items, every item details the information that should appear or that it would be recommended to appear and, a punctuation to every item depending on the information and how clear it is will be given. When there will be the results, the obtained information among the different companies and sectors they belong to will be compared, and it will be possible to recognize if there is a clear relationship between the environmental information given and the contamination.

2.-Conceptual frameworks of the environmental information

In the conceptual framework of the environmental information, first a brief explanation about the importance for the companies to supply environmental information on their annual accounts will be presented. As well as, in what this information consists, taking into account the advantages of providing that information. Another important aspect is that despite the advantages, the provided information by the companies skimps on. Moreover, the different types of information revealed by the companies will be

analysed. It will be also shown that the information is not crucial just for the companies, but also for the groups of interest.

Afterwards, a study about the evolution of the environmental information will be done. This will help to analyse the information that the Spanish companies should present in respect to environmental fields in the annual accounts according to the chart of accounts and the ICAC Resolution on 25 March 2002. The focus will be in one of the annual accounts, mainly in the memory's analysis.

An analysis of the information that the companies should provide in the management's report will also be carried out. In that case, the information that should be supplied in the management's report according to the National Securities Market Commission will be mentioned.

2.1-The importance of the environmental information

The environmental information is the one that the companies present about their activities related with the natural environment and affects, both, the main company, in order to take decisions or the investors, and the rest of the society. Moreover, currently, society is more concerned about the environment, the ISAR (Identification Senior at Risk) recognises that the environmental information provision affects the economic health of the company. Furthermore, as Zuber and Berry (1992) say, it is possible that the impact of one company on the environment will affect significantly the financial position and its financial liquidity in the long run.

Even though, current investigations about the utility of the information is limited. Basically, this is caused by the lack of regulation in environmental information fields and because of the lack of the society's awareness, but there exist some studies, for example, the ones from Epstein and Freedman and Rockness and Williams.

The individual investors demand environmental information, especially about their environmental activities, such as risks and responsibilities related with the natural environment. According to Epstein and Freedman (1994) the 82.17% of the ones who answered the studio about the demand for social information on the part of the individual investors, wished environmental information.

In terms of the investment funds, in the descriptive study of the socially responsible mutual funds existing up to day in United States, Rockness and Williams (1988), saw that, the investments in the ethical funds had quadruplicate in five years because of the "environmentalism".

2.1.1 Importance for the companies

The natural environment is one of the main society's worry, and the companies, that in some way are the cause of the environment pollution by their productive process, where they consume raw materials, generate wastes, emit gases and they can throw dangerous or damaging substances for the environment and, furthermore, they can modify the natural conditions. This collection of damages would be environmental impact, or what is the same, the modification of the environment caused by the human activity.

As Baco (2013) affirms: The improvement of the environmental redemption with the following establishment of a security guarantee, increases the value of their facilities, reduces the costs of the insurance premium, increases the investors and consumers' confidence, and improves the relationships between the administration and the surroundings.

Then, from the previous information, the following conclusion can be deduced: a company can rise its competitiveness by reducing the environmental impact, it can also rise its competitiveness by using lower amount of resources and energy, needing less for carrying out the production process. A company can provide higher satisfaction to the consumer at the same or lower price by increasing its competitiveness.

2.1.2 Groups of interest

According to Larrinaga et al. (2002) a distinction between traditional and new users can be done.

Regarding to the traditional ones, the distinction is between: **Investors and shareholders**, interested on the social and environmental risks and costs and in the ethic attitude; **Financial creditors**, interested on the social and environmental risks and costs and in the relationship with customers; **Suppliers and customers**, interested on social and environmental risks and in the quality of the products and services; and, finally, the **Public administrations**, interested on the legal compliance, resource consumption and in the ethic behaviour.

In reference to the new agents, it can be found: **the local community**, interested on the sanitary risks, environmental pollution and the implication in the community; **the workers**, interested on the health and security and quality of the work; and, finally, **the environmental and human right organizations**, interested on the environmental impact and the social and environmental politics of the entity.

2.1.3 Advantages of the environmental information

To present detailed information of the environmental accounting and to provide detailed environmental information, it is needed to take into account a series of advantages (López, 2008):

- **Environmental advantages and legal compliance**, such as: a better knowledge of the environmental situation, verification of the current law and developing of the environmental protection's initiatives.
- **Costs savings**, such as: control and optimization of the resources consume, savings of the additional costs associated with the pollution, sanctions and fines' savings and reduction of the insurance premiums by environmental risk.
- **Improvement of the external and image relationships and selling empowerment**, such as: greater credibility of the published information and improvement of the public image and of the company's attractive products and services.

- **Knowledge of the activity:** internal improvements of the efficiency, such as: identification of the areas of environmental responsibilities, directives' invitation to reflection, to the correct decision making process and commissioning of initiatives of environmental protection, improvement of the production process by minimizing pollution and improvement of the internal relationships and acquisition of the environmental responsibilities to all the levels of the organization (direction, management, workers).

2.2- Lack of the environmental information's publication

The lack of the environmental information's publication is caused mainly by different reasons.

Until few years ago, there did practically not exist the regulation of the environmental information that the companies had to disseminate. There were only recommendations, so many companies did not present environmental information.

In Spain, it does not appear practically regulation in that aspect until the resolution on 25 March 2002. In that date, recognition norms and valuation and environmental information on the annual accounts, still valid nowadays, were approved. Moreover, in other aspects, like in the management report, the information to provide is voluntary. So, apart from the financial information that companies are obligated to present, many of them does not present much more, they have enough with accomplishing the norm and giving a positive image.

According to Wilmshurts and Frost (2000, p.18) the factors that influence the decision of supplying environmental information, are, from the most important to the less one:

- The right to information of actionists and investors
- The fulfilment of the legal obligations
- The communities' preoccupation for the operations
- To satisfy requirements related to the 'due diligence'
- To provide a vision of the operations according to the faithful image
- The clients' interests

2.3- Classification of the environmental information

The environmental information can be classified depending on two criteria, according to the nature and support.

In regards to the nature, it can be distinguished between financial information and non-financial information, in spite of the major part is financial information, value of financial assets and results. Belkaoui (1992) says that the measuring is one of the main objectives of the accounting, with the purpose of comparing data. But there could be the case that, the data is limited or with lack of objectivity and veracity, that is why the non-financial information needs to be included, narrative and quantified.

On the other hand, according to the support, in the annual report can appear **mandatory financial information**, assets, expenses, provisions and environmental contingencies in the assessment, income account and memory. Also, **non-financial mandatory information**, such as the physical quantification of the environmental

impact in the memory or in the management report and the description how to minimize it.

It can also appear in the annual report: **volunteer information of financial character**, such as costs, investments, provisions or environmental contingencies breakdown; and **volunteer non-financial information**, such as supporting information to the physical quantification of the environmental impact and the description of the impacts and initiatives to palliate them in a specific part of the annual report.

Many companies opt to present an environmental report, where an accounting of the complete costs, a material balance, a comparison of emissions with environmental rules and a description of the impacts and measures to reduce them appear.

3-International evolution of the environmental law.

The legislation in the field of environmental information was started from the celebration of the United Nations Conference about Human Environment in Stockholm in 1972. During that conference, the international community gathered for the first time in order to analyse the world's necessities in the development and environment field. Even though there exist some antecedents in some countries, such as the National Parks Act approved in Spain on 8 December 1916. On it, the aesthetic and landscaping concept is defined, creating the natural park of the Covadonga Mountain and the one in Ordesa in 1918. In an international atmosphere, the most relevant is the conference of 1922, where the Declaration of Stockholm about the environmental basic principles was adopted.

Subsequently, United States developed the Superfund legislation, 1980, with two main objectives. On the one hand, to identify and recover the lands affected by toxic and dangerous waste. On the other hand, to assign the costs of the recovering to the ones responsible in the lands contamination.

Despite this fact, the affected companies did not reveal almost information about environmental responsibilities, so the **Security Exchange Commission (SEC)** introduced norms about the information's revelation. The S-K regulation established the obligatory information's disclosure, this information is structured in items, the 1 required the announcement of the material effects over the capital expenditures, profits or competitive position could have the compliance of the environmental legislation. If the companies presented fake information or missing one, these implicated civil responsibilities for the companies and criminal ones for the administrators (Skalak et al., 1993/94).

Later in 1993, SEC emitted a norm about the environmental provisions' accounting, it needed to be informed from where they were coming and how their quantity was calculated.

The second country taking into consideration the accountant normalization of the environmental aspects was **Canada**. It expanded the SEC information requests where

the listed company had to include present and expected information about the operative and financial aspects from the environmental regulation about investments, benefits and competitive position of the company. But the CICA, (**Canadian Institute of Chartered Accountants**), was who effected deeper and more systematic efforts. In 1993, it did a studio about the environmental information necessities by the company's users and it proposed that some normative should regulate this information. The CICA made conclusions about the elements' definition of the environmental accounts, the costs' treatment of the previous activities, the one from environmental expenses and investments, environmental provisions and contingencies, assets' depreciation and information about these fields.

In a multinational dimension, in 1991 ISAR (International Standards of Accounting and Reporting) presented some recommendations about environmental issues that companies should replace in the management report and in the annual accounts. Afterwards, in the area of interest by environmental topics, it elaborated a provisional report Financial Accounting and environmental surveys' presentation by the companies in 1997, being approved in 1998. It turned into recommendations about environmental costs' recognition, provisions, contingencies and environmental refunds, the environmental provisions' measure and the dissemination of environmental information.

It may be also highlighted the British regulation BS 7750 published by BSI (British Standards Institution) in 1992, the first rule about Environmental Management Systems globally published. Later, this regulation served as guide for others, both national and internationally.

In the European Union ambit, the regulation of the environmental information field was not that extended, it is from 70 when there appeared the main environmental actions. The first one was the Paris Summit in 1972, where the Heads of State and Government recognized that attention should be paid to the environment. As consequence, the I PACMA (Environment Action Programme 1973-1976) with waste and surface water general directives.

Between 1977 and 1981 appears II PACMA, in which the action guidelines established in the previous programme were actualized and expanded. In short term, it also appears III PACMA, in which new perspectives focused in the prevention and need of integrating the community environmental policy and other politics are adopted.

Afterwards, the Single European Act and the IV PACMA in 1987, focused in controlling the compliance with the Community Rules, the Treaty on European Union in 1992, the V PACMA valid from 1992 to 2000 and the European Climate Change Programme in 2000, in which defines and prepares policies and common actions at Community levels. Moreover, the European Union promised, in 1997 with Kyoto Protocol, to reduce an 8% the emissions of greenhouse gasses between 2008 and 2012 in respect to 1990. The VI PACMA (2001-2010). On it, the United Union priorities until 31 December 2010 are established, focusing in means of actuation ambits on: the climate change, the nature and the biodiversity, the environment and health and the management of natural resources and waste. The Treaty of Lisbon (2007), where it was established from the first time as specific objective of the UE the fight against climate change and it is focused on the energetic efficiency, as well as in the development and usage of renewable energies, at the time, the objective to promote the sustainable development of the UE are reinforced.

And finally, the VII PACMA in 2013 tries to face the Union challenges for the years 2013-2020 in environmental issues.

4-Current Spanish environmental regulations

All these actions affect and are reflected on the Spanish environmental politics. Then, the main Spanish resolutions on environmental issues will be analysed.

In Spain the regulation, with regard to this matter, starts with the Law 54/1997 of the 27th of November of the electric sector. There, it is included the obligation of the detailed and specific information of the activities that affect the environment. It was approved with the **437/1998 Royal decree-law of the 20th of March**, where the adjusting norms of the PGC of the electric sector companies, incorporating to the accountant right the aspects related to the environmental accounting.

Afterwards, the Institute of Accounting and Account Audits (ICAC) emitted the **25th of March of 2002 Resolutions**. In them, norms for the environmental recognition, valuation and information in the annual accounts are approved. And the **8th of February of 2006 Resolutions**, in which the norms for the register, valuation and information of the greenhouse gases emissions rights were approved. Therein, all the independent companies of their legal structure and social objective, are obligated to inform on their annual accounts about the impact of their environmental activities over their assets, their financial situation and their results. Whereas, the norms for the register, valuation and information of the greenhouse gases emissions rights are subjected to the national plan for the allocation of greenhouse gas emission allowances ('NAP').

Part of these resolutions are collected by the General Accounting Plan (PGC) approved on 16th of November by the Royal decree-law 1514/2007: environmental provisions; accounts for the legal, contractual or implicit obligations register; pledges for preventing or repairing environmental damage; and to incorporate the information in the annual accounts.

4.1 Information to reveal according to the General Accounting Plan (PGC)

According to the general accounting plan approved by the Real Decree 1514/2007 from the 16th of November, it will be provided information about:

- a) Description and characteristics of the systems, equipment and facilities more significant incorporated to the immobilised material. Always, if their finality will be to minimize the environmental impact and the protection and improvement of the environment indicating their nature, destiny, as well as the *carrying value and their corresponding accumulated depreciation if it can be determined in an individual way. Also, the value adjustments by deterioration, differentiating the ones*

recognised on the activity of the accumulated ones. It will be analysed in item 4, Note 15-part A from the project, environmental character assets.

- b) Incurred costs in the activity which finality will be the protection and improvement of the environment, indicating their destiny. The costs will be studies on the item 5, Note 15-part B, environmental character spending.
- c) Risks incurred by the corresponding provisions to the environmental actions, with the special indication of the current legal disputes, compensations and others. *It will be specified for each provision the required information for the recognised provisions in the 1st section, note 14 of the balance.* It will be studies on item 9, Note 14 Environmental Character Provisions and Contingencies, and on item 6, Note 15-part C, Environmental Character Provisions.
- d) Contingencies related with the environment's protection and improvement. Including the demanded information in the 2nd section, note 14. Analysed on item 9.
- e) *Investments realised during the activity by environmental reasons.* Analysed on item 7, Note 15-part D, Environmental Character Investments.
- f) *Received compensations from the third parties.* Analysed on item 8, Note 15-part E, Environmental Character Compensations.

This epigraph is partially normalised (page M15 from the memory Annex1). The parts of this epigraph in italics are normalised and it is included on page M15. The rest of the data requested should be appear in a sheet apart and interlock in the corresponding part of the memory. On the page M15 the information required on the memory content, that does not appear normalised on this document, has to be added

That normalised model will be distributed by: part A) the environmental assets, with its accountant value, its accumulated depreciation and the value adjustments for impairment; on the part B) the expenses for the environment improvement and protection; on part C) the provisions; on part D) activity investments by environmental reasons; and, finally, E) compensations recovered from third parties.

4.2 Environmental consignments and information in the financial statements.

In the Resolutions of the Accounting and Audit Institute (ICAC) of 25 March 2002, rules for the recognition, the valuation and information of the environmental aspects on the annual accounts are approved. The rules approved are the following:

The first one is about the scope of the text, meanwhile the rules of the second and the third established basic definitions such as environment, environmental activity and environmental responsibility, needed for fencing in the action's field of the Resolution. The elements' definition of the financial statements is seen in the 4th, 5th and 6th rule, as well as 7th and 8th. The presentation of the environmental information in the financial statements is also seen in the 9th rule, apart from the previous parts. Finally, the catalogue of accounts and definitions and the accountant relationships are regulated through the 10th rule.

In the table below the regulation from the ICAC Resolution on 25 March 2002 and the different relationships among them can be observed.

Table 2: Structure of the ICAC's Resolution from 25 March 2002.

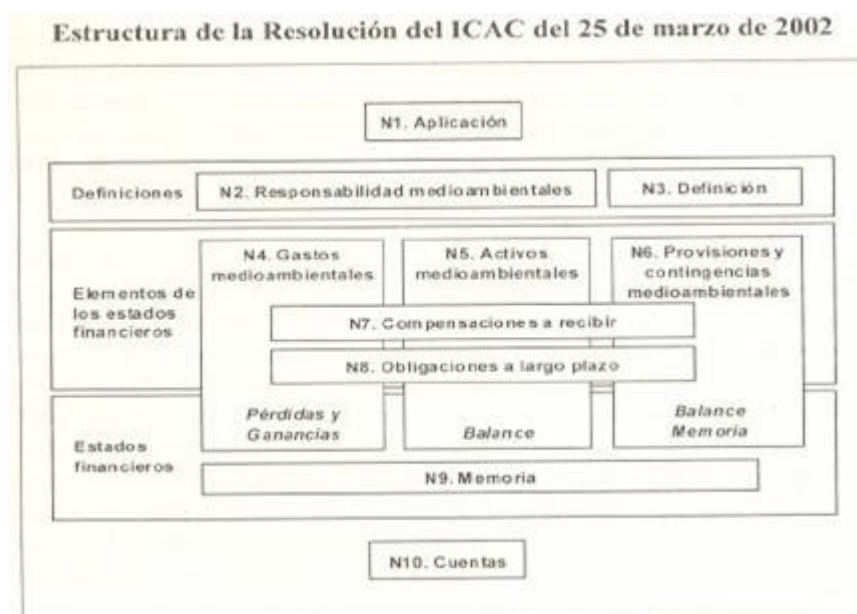


Figure 1: Source: ICAC's Resolution on 25 March 2002

Down below the main lines that appear will be analysed:

1) Assets and expenses of an environmental nature

The Resolution from the ICAC defines the environmental expenses such as: accrued expenses from the realized environmental activities or the ones that are going to be carried out for the environmental effects' paperwork of the Entity operations, just as the derivatives of the environmental commitments of the accounting entity.

The expenses would be, spending related with the pollution's prevention, the treatment of waste and spilling, the decontamination, the restoration, the environmental management or the environmental audit. That expenses, when they will be significant, a specific item named "Environmental Expenses" will be created, inside the aggrupation "Other operating expenses", they will appear on the account of **expenses and benefits** and it will be explained in **note 22 from the memory** "Information about environment".

In regards to the penalisation, sanctions and compensations to thirds will be classified as extraordinary expenses, since they are facts that happened outside the ordinary entity's activity and it is expected not to happen frequently.

On the other hand, the Assets will be elements incorporated to the entities' vests in order to be used in a lasting way in their activity. Their main purpose will be to minimize

the environmental impact and the environmental protection and improvement, including the reduction or elimination of the future pollution of the entity's activities. They will be counted on the following grouping items **B) Fixed Assets**, from the balance sheet and they will be valued as prescribed in the valuation norm 3. ^a Particular regulation about the property, plant and equipment, letter f) and, in its way, in the third regulation.

They are studies in items 4 and 5, also in 1 in case of being reflected on the assessment and P and G.

2) Environmental nature provisions and contingencies.

There will be provisions the expenses originated in the same or previous activity, clearly specified in environmental nature, but at the activity's closing date, will be proved or true but unfinished when talking about its cost or production date.

The cost of this provision will be the best estimation possible from the necessary expense to face the obligation on the closing date. These provisions will appear in the aggragation «C) Provisions for risks and expenses», concretely in the section «3. Other provisions», of the balance sheet. If it would significant, a specific sheet will be created, «Provision for environmental actions».

It will be contingent and, by the way, informed in the annual accounts memory, in the following cases: When the obligation's liquidity is unlikely to be originated in a disbursement of resources and when the obligation will be confirmed only in an uncertain or improbable event and that confirms the obligation's origin.

3) The compensation to be received from a third party.

The compensation to be received from a third party in the moment to settle the obligation, will not suppose a reduction of the amount of the debt and will be identified in the entity's asset the collection rights, if there are no doubts that the refund will be provided. The amount by which the mentioned asset will be registered will not exceed the obligation's cost recorded in the accounting.

4) Long-term obligations of the environment's restoration.

The decontamination and restauration costs of polluted areas, elimination of accumulated wastes and closing or removal of fixed assets, will require to provide the corresponding provision until the moment in which the entity has to pay attention to the mentioned obligation.

If the usage of a fixed asset causes damages to the environment and it needs to be repaired at the end of its useful period, a proportional share of the estimation has to be addressed to repair the caused damages.

5) Environmental incomes.

It will be such as grants destined to the prevention activities' realization, to the reduction or reparation of environmental damage, and the expenses activation incurred in the construction of elements destined to the environmental protection, by the "Realized projects" accounts.

It does not exist a specific regulation for recognizing the environmental incomes, it will be informed in note 22 from the memory. And they will be analysed on item 8.

4.2.1 Environmental information in the memory.

Regarding the **memory**, it will complete the environmental information that will appear in the balance and profit and loss account, and also information with environmental repercussion that could not be included in the profit and loss account will be included.

-Information to be included in the memory according to the resolution of 25 March 2002.

In the **part «4. Valuation regulations»**, it will be expressed: Valuation criteria, a description of the estimation and calculation method of the provisions derived from the environmental impact and the accounting policies about the decontamination and restauration of the damaged areas. This point will be analysed in the item 2, Note 4 from the Memory Registration and Valuations Regulations.

In the **part «15. Fiscal situation»**, information about the credits for investment in measures for reducing the environmental impact will be included. This point will be seen in item 3, Note 12 Fiscal Situation.

It is created a new **part «22. Information about the environment»**, where the following information needs to be given:

1- Descriptions and characteristics of the most relevant systems, equipment and facilities incorporated to the tangible fixed assets and the protection and improvement of the environment mentioning its nature, destiny, as well as its account value and its corresponding accumulated amortization, always it can be determined individually.

2- Incurred expenses in the activity which purpose is to protect and improve the environment, distinguishing the ordinary expenses, from these other ones with extraordinary nature, always indicating its destiny.

3- Risks and expenses for the corresponding provisions to environmental acts, with special indication to the litigation in progress, compensations and others; it will be marked for each provision:

Initial balance.

Provisions.

Applications.

Final balance.

4- Contingencies related with the environment protection and improvement, including the risks transferred to other entities, evaluation of the estimation system and factors in which it depends, with the indication of the eventual effects on the legacy and results; in that case, the reasons that prevent from this evaluation will be indicated, as well as the maximum and minimum risks; financial and operational purposes foreseen as consequence of the future environmental agreements and investments.

5- Full amount of the environmental nature responsibilities and, in its case, the compensations to get.

6- The environmental nature received grants, as well as the incomes produced as a consequence of certain activities related with the environment.

As mentioned when explaining the main items that appear in the ICAC Resolution from the 25 March 2002, the content of this part will be seen in items 4, 5, 6, 7 and 8. In the case of item 6, it is focused on the provisions of this section of the memory.

4.2.2 Environmental information to include in the management report

The National Stock Market Commission provides a guide to elaborate the management report of the stock market entities. According to the CNMV, in the management report, in reference to environmental information, information that will depend, on the one hand, on the sector in which it operates the company, and on the other hand, on the company's strategy to reduce the impact of the entity over the environment and to contribute this way to the sustainability has to be provided. It means, to include the impacts on natural systems, including ecosystems, land, air and water.

There exist various fundamental environmental questions that affect all the general companies. According to CNMV these examples that could work as reference in the entities in addressing the information that refers to environment:

- Materials
- Energy
- Spills and wastes
- Water
- Biodiversity
- Transport
- Products and services
- Normative compliance

So, taking into account the community regulation, Article 46 of the Directive 78/660/CE in reference to environmental information to supply, the CNMV recommends that the entity should consider if including information about:

1) Important environmental aspects for the entity, how it tries to minimize the entity's objectives in relation to the environmental varieties, the company's policy, including a description of the environmental management's systems.

It is recommended to include the detail of the operating environmental administrative systems, as well as, the certifications obtained by them, indicating the entity components they refer to. Available resources to face the previous objectives, including the policy regarding the demand and disputes that can be presented. The procedures related with the training and awareness of the environmental aspects; just as the monitoring and measuring procedures and corrective and preventive action, including:

- Main plans of policy implementation or objectives' achievement of natural environment.

- Main achievements and deficiencies, risks and opportunities related with environmental issues.
- Main systems or structures changes done during the reporting period, geared to improve performance.

2) Used government incentives in order to protect the environment, such as grants and tax deductions, it also recommends to supply a degree of implementation's description of the environmental protection measures, implemented or in the implementation phase, imposed by the amendments of the legislation.

The information that appears in the management report will be analysed in item 10, Environmental information in the management report.

5. Objective of the study

The main objective of this study will be to determine the quantity and quality of environmental information in the annual accounts, including balance, P and G, memory and report of the management. It will be supplied by the 10 most polluting companies in Spain and it will be presented if there is some relationship between the position these companies have in reference to pollution and the information given, both by companies and by sectors.

Concretely, the environmental given information in the financial statements and the one given in the memory of that companies, both mandatory and volunteer one, will be compared. It will be analysed the environmental information given by Endesa, Gas Natural, Repsol, EDP, Arcelor Mittal, Cepsa, Iberdrola, Viesgo, Cimientos Portland and Cemex. A comparison focusing on the companies by sectors, mainly in fuel and energy sector, will also be done. In order to know which sectors, present more information and more clear one. This way, it will be known if they comply with the legislation when presenting environmental information in the annual accounts, which type of information and the difference between them when presenting it.

6. Justification

Currently in Spain, ten companies emit a 25% of the greenhouse effect gases from the Spanish total recorded, Endesa is, by far, the one that more gases emit, 28.67 million of tones of CO₂, followed by Gas Natural, with 11.6 million of tones and on the third place it is situated Repsol with 10.74 million of tones, almost at the same level of Gas Natural, the next one is EDP with 7.53 million of tones, Arcelor Mittal with 6.02, Cepsa with 4.93, Iberdrola with 3.91, Viesgo with 3055, Cementos Portland with 2.83 and finally Cemex with 2.45 million of tones. (EI Economista 2017)

Table 2: CO₂ tones emitted by the companies, that emit the 25% of the greenhouse effect gases in Spain.

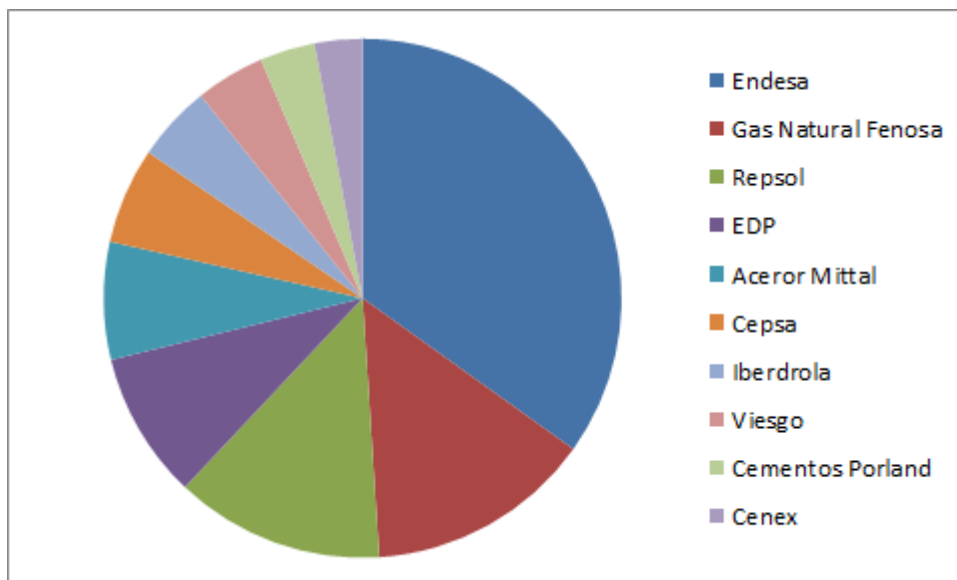


Figure 2. Source Own elaboration

6.1 Pollution by sectors

These ten companies belong to different sectors, the major part to the fuel and energy sector, although, attention needs also to be paid to the cement industry. This is because among these 25% the two most important companies on that sector appear, and the steel sector, with Arcelor Mittal on the fifth position.

The production of energy is the most polluting sector, **the fuel and energy sector** comprise the companies dedicated to the exploration, extraction, production and refining of petrol and products derived from it; production, commercialization and distribution of gas and/or electricity, such as the provision of water to final consumers, including water treatments plants and other activities.

It is important to note that, coal energy generation (really pollutant) means 50 M of tones equivalent of CO₂, they represent 72,3% of the total energy production; this produces altogether, half of the total national emissions (almost 70 M tonne).

In reference to the cement sector, the problem is rather the kiln, they need a lot of energy in order to achieve temperatures higher than 2000°C, expelling all type of emissions such as particles of dust, gases such as sulphur dioxide, nitrogen oxides, monoxide, carbon dioxide, chlorides, fluorides, toxic organic compounds and heavy metals. It is for that reason that the cement production is an important source of carbon dioxide emission.

On the other hand, the steel sector. The steel companies are responsible of the 27% of CO₂ emissions that generates the industrial activity in the world. In 2007, in the case of Arcelor Mittal, world leader of steel manufacturers, emitted to the atmosphere 239 million of carbon dioxide tonnes. Although 24% of the groups production is done in electric kilns, less polluting, and it has a programme to recycle steel that contributed to save 600 million tonnes of emissions, that each year achieves.

6.2 Spanish expansion of the emissions

Carbon dioxide emissions (CO₂) originating from energetic usage from burning fossils fuels, or what is the same, petrol, natural gas and coal, increased last year 1,6% in Spain in relation with 2015, however, European Union measure decreased a 0,4%. Eurostat (2015).

Furthermore, in 2017, Spain is the sixth country from European Union in CO₂ emissions from burning fossils, with an 7,7% from the total emitted by the EU, surpassed only by Germany with a 22,9%, United Kingdom 11,7%, Italy 10,1%, France 9,8% and Poland 9,2%. (Expansión, 2017)

In 2015, the Spanish electric power generation sector, risen the emissions of the 17,6%, with an increase of the 22,1% coal-fired power plants and an increase of the 16,3% in the combined natural gas cycles in respect to the previous year. Moreover, the emissions increase in 2015 a 3,3% in reference to the previous year, meanwhile the ones from all the European Union countries where decreasing. (Bez, 2017)

As a result, an increase in the Spanish emissions the last few years can be seen.

7. Design of the investigation

7.1 Sample

Currently, ten companies are the responsible of the 25% of the greenhouse effect gases in Spain, these ten companies will be the sample to analyse. A classification by sectors will be done, and the companies participating will be the following ones:

Clasificación de las diez empresas, que producen el 25% de gases invernadero, por sectores.

-Petróleo y energía	-Endesa S.A -Gas Natural SDG S.A -Repsol S.A -Energias de Portugal S:A -Cepsa S.A -Iberdrola S.A -Viesgo S.L
-Cemento	-Cementos Portland S.A -Cemex S.A
-Siderurgia	-Arcelor Mittal España S.A

Table 1: Source: Own elaboration

In order to do the analysis of the information among that companies, the annual accounts from 2017 from the CNMV (Comisión Nacional del Mercado de Valores) of the companies quoted on stock exchanges and from the commercial register, the last accounts of the companies that not quoted on stock exchanges.

7.2 Methodology

The used methodology would be, the environmental information analysis given by the companies in the annual accounts of 2017, by compiling the information of the different companies. This type of methodology has been successfully used in projects related to environmental information (Llena et al, 2007).

Later, the environmental information provided by the companies in their annual accounts will be analysed. If there is information or not will be studied and which type of environmental information appears in the Balance sheet and Profit and Loss statement, in the Memory and in the Management report, on the basis of environmental information to supply according to the Spanish General Accounting Plans and the information to provide according to the most important environmental Resolution, the Resolution from 25 March 2002.

In order to analyse the given information in the Management report, a guide supplied by the Spanish National Stock Market Commission will be the base.

So, the following items will be studied:

- 1- Environmental information on the Balance sheet and the P and G.
- 2- Note 4 of the Memory Registration and Valuation Regulation.
- 3- Note 12 Fiscal Situation.
- 4- Note 15-part A, Environmental assets.
- 5- Note 15-part B, Environmental expenses.
- 6- Note 15-part C, Environmental provisions.
- 7- Note 15-part D, Environmental nature investments.
- 8- Note 15-part E, Environmental compensations.
- 9- Note 14, Environmental Provisions and Contingencies.
- 10- Environmental information in the management report.

If there is no information in one item, or what is the same, if the analysed company does not give information in that part, a value 0 will be assigned, and if, on the contrary, it gives information, a value 1, if there is few information or it is low quality information a 0.5 value.

8. Analysis of the results

In order to do the analysis of the ten Spanish most polluting companies, there will be a separation by sectors, as previously mentioned. This way the obtained results will be compared among the companies from each sector, except from steel one, because there is only Arcelor Mittal. An analysis among all the independent companies of the

belonging sector will also be carried out. It will be possible to compare the environmental information given in the accounts, in respect to the pollution rank that represents it in Spain.

8.1 Fuel and energy sector

8.1.1 Endesa S.A

The first analysed company in the fuel and energy sector is Endesa S.A, the most polluting company in Spain, with a total of 28.67 million of CO₂ emissions' tonnes, more than 17 million tonnes over Gas Natural.

The first item in being analysed is if it provides environmental information directly in the balance sheet and profit and loss account. In the case of Endesa, it is observed that it does not give any information, therefore the value will be 0.

Let's move to the second item, this is already part of the memory's information, note 4 registration and valuation regulations. It can be seen that in Endesa it is presented in part 3. It is said the criteria for recognising the carbon dioxide emissions' rights, and it also comments on the provisions in order to cover the carbon dioxide emissions' expenses. It will obtain 1.

In reference to note 12, Fiscal Situation, it does not offer anything. The value will be 0.

Regarding note 15, there is not any point in the memory dedicated to the environmental information. In the case of the environmental assets, they are only mentioned in part 6. Equipment whose environmental investment has been 110 million of euros in 2017 and the accumulated investment that is 1.635 million euros, but nothing is mentioned about the different environmental assets. It will obtain 0. In reference to this information shown here, it belongs to item 7, it is also expanded in the management report, obtaining a 0.5 score.

Let's go to part B, in response to the Expenses it is also mentioned in point 6, it is simply said that it is 100 million, 45 in amortizations of environmental investments but it does not give more details, it will obtain 0.5.

Regarding part C, provisions are expressed in point 17.3 Other provisions, although, just the provision for covering the expenses of the carbon dioxide emissions (CO₂) are expressed. It will obtain a 0.5. in reference to environmental compensations, it does not comment anything, this item will get 0.

Item 9, note 14 from the memory, Environmental Contingencies and Provisions. In that case Endesa does not provide this point. It will obtain 0.

Finally, item 10, Environmental information in the management report. In this item it is observed that it provides much more environmental information than in the memory. It explains the company's environmental policy, it also mentions the current and future environmental investments, the sustainability policy and the Investigation, Development and Innovation activities in order to reduce the environmental impact. It will obtain 1.

With the previous information the next table is carried out.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	0
5	Nota 15 punto B, Gastos de carácter medioambiental	0.5
6	Nota 15 punto C, Provisiones de carácter medioambiental.	0.5
7	Nota 15 punto D, Inversiones de carácter medioambiental.	0.5
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0
10	Información medioambiental en el informe de gestión.	1
Total		3.5

Table 2. Source: Own elaboration

Endesa obtains a score of 3.5

8.1.2 Gas Natural SDG S.A

The second analysed company is Gas Natural, the second most polluting company in Spain after Endesa with 11.6 million of tonnes.

With reference to item 1 it does not provide neither environmental information directly in the balance sheet and profit and loss account, it will have 0 value.

Focusing on item 2, note 4 register and valuation legislation, it is offered by point 3. It mentions the accounting of expenses and assets, and it also explains the environmental provisions. It will get 1.

The item 3, Note 12 Fiscal Situation, is seen in note 21, but it does not say anything with environmental character. It will have value 0.

Let's move now to analyse note 15, in this case Gas Natural offers a hole section dedicated to environment, although on it just environmental investments are explained, but in reference to item 4, it does not mention anything about environmental assets. The investment related to item 7, and it is quite exhaustive, will get 1.

Moving to part B, with regard to environmental expenses nothing is not said. Punctuation is 0. It is not explained anything about provisions and risks, neither about environmental compensations, item 6 will have a value of 0 and item 8 will have also 0.

On the other hand, in the item 9, Note 14, Environmental Provisions and Contingencies, Gas Natural in the note 35 talks about the environmental incentive to the coal-fired plants in Spain, besides the fact it just informs about this. It will get a punctuation of 0.5.

In reference to item 10, the management report supplies quite a lot of information, and it dedicates one point, the 5.3. Responsible stewardship of the environment, where environmental ratios are detailed, highlighting its improvement, it explains its environmental policy and it talks about the achievements in environmental field. It will get a punctuation of 1.

With that information the following table is formed.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	0
5	Nota 15 punto B, Gastos de carácter medioambiental	0
6	Nota 15 punto C, Provisiones de carácter medioambiental.	0
7	Nota 15 punto D, Inversiones de carácter medioambiental.	1
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0.5
10	Información medioambiental en el informe de gestión.	1
	Total	3.5

Table 3. Source Own elaboration

Gas Natural obtains a score of 3.5

8.1.3 Repsol S.A

The third analysed company is Repsol with 10.74 million of tonnes emitted, practically the same as Gas Natural.

In the item 1 it is also observed that it does not supply environmental information in the balance sheet and the profit and loss account, it will have a 0 value.

In the item 2, note 4 register and valuation regulation, Repsol presents in the note 2 the environmental costs and assets valuation, and in note 3 the provisions. It will obtain 1. Regarding item 3, it does not specify anything about environmental deductions, it will get 0.

Repsol offers a hole point dedicated to environment, the 29. Information about environment, on it the environmental assets and its amortization is explained, so the punctuation of the item 4 will be 1. It is also detailed its environmental expenses, expenses for covering CO2 emissions conducted in 2017, and they ascend to 69 million of euros, the punctuation of the item will be also 1. Moreover, the investments are also exposed, such as Cartagena investment, 5,2 million euros in order to reduce the power consumption in the atmospheric distillation unit. In the item 7 the punctuation will be 1.

This part also let to know the provisions in big detail, their quantities and the risks, in the item 6 it will get 1. In regards to item 8 it does not say anything about compensations.

On the other hand, item 9 talks about contingencies in the note 15 although briefly, the punctuation will be 0.5.

In relation to the management report it provides sufficient information, including an environmental point, it expresses the ratios and environmental policy. It will get 1.

From that information the following table is obtained.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	1
5	Nota 15 punto B, Gastos de carácter medioambiental	1
6	Nota 15 punto C, Provisiones de carácter medioambiental.	1
7	Nota 15 punto D, Inversiones de carácter medioambiental.	1
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0.5
10	Información medioambiental en el informe de gestión.	1
	Total	6.5

Table 4. Source: Own elaboration

Source: Own elaboration.

Repsol obtains a punctuation of 6.5

8.1.4 EDP S.A

The fourth company analysed is EDP Energy, with 7.53 million of tonnes, company with head office in Portugal, even though important in Spain.

In reference to item 1, it is observed that it does not supply environmental information directly on the balance sheet and neither in the profit and loss account. The value will be 0.

In the item 2, note 4 register and valuation regulation, EDP does not present a part where these norms are presented, in the case of the provisions they are explained in note 36. Provisions and in reference to the assets and expenses it is explained its accounting in the note 50. Environmental Matters. It will obtain 1. With reference to item 3, it does not specify anything about environmental deductions, the punctuation will be 0.

EDP offers a point dedicated to the environment. The note 50. Environmental Matters. On it, the investments accounted as assets will appear well detailed, by their respective quantities such as air and protection of the climate and in water, Although, it does no

explain the environmental assets, it will get 1 in the item 7 and 0 in the item 4. Inside this point, the environmental expenses are well explained, such as biodiversity protection and radiation management, in the item 5, obtains a 1.

The provisions also appear in this note, with provisions for covering the expenses of lands' dismantling, restauration and decontamination of 89.173 thousand of euros, moreover in the note 36. The provisions appear itemised and it shows its value, it also exposes its risks and talks about contingencies even it does not specify if they are environmental, in the item 6 it will get 1 and in the item 9 a 0.5.

As regards the compensations grants, EDP will also offer them in that point, it should be highlighted that it is the only analysed company until the moment that it offers it. It shows the environmental incomes separating between, environmental waste selling with 7008 thousand of euros and the sub products selling with 367 million of euros. The item 8 will obtain 1.

Finally, EDP does not offer a management report itself, maybe because it is Portuguese it does not present it as the other companies analysed. EDP does not supply a list of the annual accounts notes where information related to the memory and much more information such as, description of the activity and the companies' policy where the environmental policy of the company is present, in the item 10, although the fact it does not have a management report will get 0.

With all this information we obtain the following table.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	0
5	Nota 15 punto B, Gastos de carácter medioambiental	1
6	Nota 15 punto C, Provisiones de carácter medioambiental.	1
7	Nota 15 punto D, Inversiones de carácter medioambiental.	1
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	1
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0.5
10	Información medioambiental en el informe de gestión.	0
Total		5.5

Table 5. Source: own elaboration

EDP obtains a punctuation of 5.5

8.1.5 Cepsa S.A

The fifth company in being analysed is Cepsa with 4.93 million of CO2 tonnes emitted.

Starting by the balance and P and G, directly, there is not apparent environmental information, item 1 will get a 0.

Now it is the turn for item 2, Cepsa gives the registration and valuation normative in a section reserved to the environmental aspects, inside the part where all the registration and valuation legislation appear. It is explained what the environmental expenses and assets are and it also talks about the topic provisions where in note 28 is explained with more detail. In this item it gets 1. In reference to item 3 it does not appear environmental character deduction, so it will obtain 0.

Cepsa supplies a section, note 28 Environmental Aspects, where it exposes its environmental assets with its respective amortizations, such as sulphur recovery plants and improvements in order to achieve a higher energetic efficiency. In the item 4 it will obtain 1. It is also specified in that part the different expenses, obtaining 1 in the item 5, and it shows the investment value in environmental fields, but it does not specify which investments they are, for this reason, in item 7 it will get 0.5. There also appear here the environmental provisions, they are detailed by quantities, and they are also mentioned in note 20 Provisions and other obligations, so in reference to item 6 it will obtain 1.

With respect to the grants, Cepsa includes the emission of greenhouse effect rights in the note 18 Capital subsidies, that is why it will obtain 0.5 in item 8.

On the other hand, in the item 9, Cepsa does not offer environmental provisions and contingencies.

Finally, in item 10, it offers enough environmental information in the management report, where it is explained its environmental policy based in two rules, the basic environmental regulation and the one related to biodiversity. Moreover, Cepsa institutes an environmental management system certified by: UNE-EN ISO14001 normative and the EC 1221/2002 regulation of the European Parliament and the Council. It also exposes the different measures that the company performs in order to reduce the environmental impact and it also mentions the environmental risks and provisions. In this item, it will get 1.

With all the previous information the following table will be created.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	1
5	Nota 15 punto B, Gastos de carácter medioambiental	1
6	Nota 15 punto C, Provisiones de carácter medioambiental.	1
7	Nota 15 punto D, Inversiones de carácter medioambiental.	0.5
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0.5
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0
10	Información medioambiental en el informe de gestión.	1
Total		6

Table 6. Source: Own elaboration

Cepsa obtains a punctuation of 6.

8.1.6 Iberdrola S.A

The sixth analysed company is Iberdrola, with 3.91 million of CO2 tonnes emissions emitted.

With regard to item 1, it can be observed that it does not provide environmental information directly in the balance and profit and loss account, it will have a value 0.

In reference to item 2, note 4 register and valuation legislation, Iberdrola details briefly how the provisions were determined, doing an analysis of the polluted assets and the cost for its decontamination. It also comments on the provision of CO2 emissions and by dismantling. It will get 1. In the item 3 it does not appear environmental deductions, it will obtain 0.

With regard to Iberdrola it does not supply any part in the memory about environment, nor the environmental assets neither the expenses do appear and about the investments in the management report it appears almost nothing, the grants are not specified. That is why the items 4, 5, 7 and 8 punctuate 0.

It does offer in note 25 the provisions well detailed, with its quantities and separated by provisions the CO2 emissions by transport and other provisions, where the environmental ones are included. In item 6 it will obtain 1.

On the other hand, in the item 9, note 14 Environmental Provisions and Contingencies, appear in the note 45, where it is englobed all the contingent assets and liabilities and where it explains some of environmental character. This is the case of one Asset related with the eco-tax of Extremadura and a liability by complains of the Environmental Protection Agency of United States for non-compliance of the environmental legislation. In reference to item 9 it will obtain 1.

With regards to the management report, item 10, Iberdrola does not provide neither that much information, it explains its environmental policy, its achievements, how to reduce in a 70% the emissions in Europe, it also comments on the environmental risks and when talking about the environmental investments it only mentions the Life Project, but it does not specify quantities or any other type of investment. Item 10 will get 0.5.

With this information this table is elaborated.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memoria Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	0
5	Nota 15 punto B, Gastos de carácter medioambiental	0
6	Nota 15 punto C, Provisiones de carácter medioambiental.	1
7	Nota 15 punto D, Inversiones de carácter medioambiental.	0
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	1
10	Información medioambiental en el informe de gestión.	0.5
Total		3.5

Table 7. Source: Own elaboration

Iberdrola obtains a punctuation of 3.5.

8.1.7 Viesgo Energía S.L

The last company analysed in the oil and energy sector will be Viesgo with 3.55 million of emission's tonnes.

Regarding item 1, it can be observed that it does not provide environmental information directly in the balance and profit and loss account, it will have a value 0.

In item 2, note 4 registration and valuation regulations, Viesgo offers already the treatment of the environmental expenses inside the immobilized equipment, there is a section for the environmental provisions and finally, in another section, the treatment of the assets, expenses and investments is explained. It will get 1. In reference to the item 3, environmental deductions does not appear, it will obtain 0.

Viesgo dedicates a hole section to the environmental information, although it is said that

It does not purchase environmental assets, it does not have expenses and neither significant contingencies, and that the provisions are not necessary. It also mentions that it does not have emissions rights. As it is not known if it does not have them or it is not specified, in items 4, 5, 6, 7, and 8 will get 0.

With regards to item 9, Environmental provisions and contingencies, it is said that in the others, the environmental ones are, despite the fact, it was previously said it does not have. It obtains 0.

The management report does not give neither any information about environment. The score is 0.

The following table is elaborated from all the previous information.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	0
5	Nota 15 punto B, Gastos de carácter medioambiental	0
6	Nota 15 punto C, Provisiones de carácter medioambiental.	0
7	Nota 15 punto D, Inversiones de carácter medioambiental.	0
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0
10	Información medioambiental en el informe de gestión.	0
	Total	1

Table 8. Source: Own elaboration

Viesgo obtains a punctuation of 1.

8.2 Cement Sector

8.2.1 Portland Valderrivas S.A Cements

Now the two companies of the cement sector that are included in the ten most polluting ones will be analysed. Even if they are in the last positions of the ranking, Portland Valderrivas Cement emits 2.83 million of CO2 tonnes.

The item 1 does not provide any environmental information directly in the balance sheet and the profit and loss account, the value will be 0.

In the item 2, note 4 registration and valuation regulation, Portland Cements gives a brief explanation in the note 25. Information about the environment, it is explained how the provisions and expenses have been treated. It will obtain 0.5. in reference to item 3, there does not appear environmental deductions, the score is 0.

Portland Cements offers a note dedicated to environment, note 25 previously mentioned, on it, the value of the environmental assets is offered, 134.093 thousand euros and its corresponding amortization, but it does not separate the types of assets. In the item 4 it gets 0.5. The expenses, even though only the final ones, are included in

this note. Item 5 will obtain 0.5. And finally, the provisions are offered in great detail how they were obtained. Item 6 will obtain 1.

Regarding item 9, Environmental Provisions and Contingencies, in Portland Cements they appear in note 16. Provisions and contingencies, where the environmental provisions are mentioned and where it is said that contingencies do not exist. The score is 0.5.

Finally, in the management report, item 10 offers not that much environmental information, although it explains the environmental policy of the company, the investment strategies, among them the sustainable construction and the materials with smallest carbon footprint, how to use biomass for kilns, lowering CO2 emissions significantly. In the item 10 it obtains 0.5.

With this information the following table is completed.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0
2	Nota 4 de la Memória Normas de Registro y Valoración	0.5
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	0.5
5	Nota 15 punto B, Gastos de carácter medioambiental	0.5
6	Nota 15 punto C, Provisiones de carácter medioambiental.	1
7	Nota 15 punto D, Inversiones de carácter medioambiental.	0
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0.5
10	Información medioambiental en el informe de gestión.	0.5
Total		3.5

Table 9. Source: Own elaboration

Cementos Portland obtains a punctuation of 3.5.

8.2.2 Cemex S.A

The other analysed company in the cement sector, and in the last position of emissions, is Cemex, with emissions of 2.45 million of tonnes.

In the case of Cemex, in the item 1, it appears the account of profit and loss in the 7. Other exploitation expenses, c) expenses by greenhouse effect emissions, it is the only company that offers environmental matters on the balance sheet and p and g, it's values will be 0.5.

In the item 2, note 4 register and valuation legislation, Cemex explains how the greenhouse effect gasses are presented, in that case they are included as grants. It also explains how the assets and expenses provisions for the environment are shown. In this item it gets 1. In the item 3, it does not appear environmental deductions, it will obtain 0.

Cemex offers a note dedicated to the environmental information, note 28 Environmental information, on it the values of the environmental assets are offered, a good division among them is done and it also provides with their respective amortizations, although it mentions the investments are included in the assets values and it does not explain anything. It will get 1 in item 4 and 0 in item 7.

It also mentions the expenses and total number is said, besides this fact, it is not specified, it only says that it appears in p and g, it will get 0.5 in item 5.

Regarding the provisions it is written they appear well explained in part 24. Other provisions, although note 28 does not supply information, it will obtain 0.5 in item 6. Finally, referring to the environmental incomes, it does not appear anything. The CO2 remission rights are considered as grants in general. It will get 0 in item 8.

With regard to item 9. Environmental Provisions and Contingencies, they appear in note 24. Other provisions, where the environmental provisions are given, ascending to 420 million of euros, it is specified how they were obtained and it shows a provision, fees restoration of the quarries they exploit amounting to 157 million, and it also provides the provisions by emission's rights. It also offers contingencies, some of them environmental ones. It will get 1.

Finally, it does not offer environmental information on the management report, that is why it will score 0 in item 10.

With that information the next table is elaborated.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0.5
2	Nota 4 de la Memória Normas de Registro y Valoración	1
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	1
5	Nota 15 punto B, Gastos de carácter medioambiental	0.5
6	Nota 15 punto C, Provisiones de carácter medioambiental.	0.5
7	Nota 15 punto D, Inversiones de carácter medioambiental.	0.5
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	1
10	Información medioambiental en el informe de gestión.	0
Total		5

Table 10. Source Own elaboration

Cemex scores 5.

8.3 Steel sector

8.3.1 Arcelor Mittal España S.A

The only company of the steel sector that is placed between the 10 most polluting is Arcelor Mittal, although it should be highlighted that it is in the 5th position after EDP, with 6.02 million of tonnes.

In the item 1, the provisions' balance sheet by greenhouse effect emissions appear. It will get 0.5.

In the item 2, note 4 register and valuation legislation, it is mentioned the provisions by restoring the landfills and quarry and the provisions by emissions' rights, and it does not say anything about environmental assets and expenses. It also explains that the emission rights are seen as grants. It will obtain 0.5. In the item 3 environmental field deductions do not appear, so it will get 0.

Arcelor Mittal do offer a note dedicated to environmental information, where it is explained well detailed the investments and improvements in environmental field, such as the regeneration's plant HCl reform, the Continuous Improvement Plant and the Improvement of the Noise Plan. It says that the total is 7149 thousand of euros. In the

item 7 it obtains 1. The second topic mentioned is the environmental assets with its well differentiation and showing its costs and its respective amortization. In item 4 it gets 1. It also informs about the expenses, with a total of 25647 thousand euros, and that they are derived from the maintenance of the environmental assets and from the environmental control and monitoring, but it is not added anything else, item 5 obtains 0.5.

In reference to item 6, it is only mentioned the provisions arisen by costs of franked, closing and pos closing and the provisions by emissions' rights. It gets 0.5. with regards to environmental incomes, it does not appear anything, it is just mentioned that the CO2 emission's rights will be granted. It will get 0 in item 8.

There is not a section that details environmental provisions and contingencies, in the item 9 it obtains 0.

Finally, in the item 10, information in the management report, it is explained the environmental investments and improvements, but it is almost the same as in item 7. It should be highlighted the detailed explanation of the emission's rights, its quantity and its excess at the moment of doing the purchase, it is explained how they were obtained. It will get 0.5.

With this information the following table will be completed.

Ítem	Descripción ítem	Puntuación
1	Información Medioambiental en el Balance y P y G.	0.5
2	Nota 4 de la Memória Normas de Registro y Valoración	0.5
3	Nota 12 Situación Fiscal	0
4	Nota 15 punto A, activos carácter medioambiental.	1
5	Nota 15 punto B, Gastos de carácter medioambiental	0.5
6	Nota 15 punto C, Provisiones de carácter medioambiental.	0.5
7	Nota 15 punto D, Inversiones de carácter medioambiental.	1
8	Nota 15 punto E, Compensaciones de carácter medioambiental.	0
9	Nota 14, Provisiones y Contingencias de carácter medioambiental.	0
10	Información medioambiental en el informe de gestión.	0.5
Total		4.5

Table 11. Source: own elaboration

Arcelor Mittal obtains a punctuation of 4,5.

9. Comparison by sectors

Preparing a compilation of the previously obtained punctuation, the following table can be provided:

Empresa	Puntuación
-Endesa S.A	3.5
-Gas Natural SDG S.A	3.5
-Repsol S.A	6.5
-Energías de Portugal S.A	5.5
Cepsa S.A	6
Iberdrola S.A	3.5
-Viesgo S.L	1
-Cementos Portland S.A	3.5
-Cemex S.A	5
-Arcelor Mittal España S.A	4.5

Table 12. Source: Own elaboration

As it can be observed, the major part of the companies has a low punctuation, the tendency of the companies is to not present all the information, both mandatory and volunteer that they should. The ones with better score are: Repsol S.A, Cepsa S.A, Energías de Portugal S.A and Cemex S.A. On the other hand, the ones with worse information, and consequently score, is Viesgo S.L with a total punctuation of 1. It does not almost present environmental information, only registration and valuation legislation. Both, Endesa S.A and Gas Natural SDG S.A should be highlighted, because both together have the same emissions as the other eight, and on the other hand, they are the ones with lower score.

Sector	Media del Sector
-Petróleo y Energía	4.21
-Cemento	4.25
-Siderurgia	4.5

Table 13. Source: Own elaboration

If it is proceeded to get the average among the companies by sectors, it can be observed that the punctuation is quite similar and quite low, there are not almost variation among the different sectors. It is worth noting that, the petrol and energy sector comprehends the most polluting companies, and, on the other hand, is the one with better punctuation. However, the cement sector, represents a low percentage of the pollution in respect to the petrol and energy, and it gets a better score. Finally, in the steel industry, there is only Arcelor Mittal, with a 4.5 punctuation, and it obtains a higher punctuation in comparison to other companies that pollute much more.

10. Conclusion

The objective of this investigation is to determine the quantity and quality of environmental information in the annual accounts, balance sheets, loss and profit account, memory and management report of the 10 most polluting companies in Spain.

In order to do so, a monitoring environmental legislation's evolution was done. In it, the ICAC's Resolution of the 25 March 2002, and the Spanish National Chart of Accounts of approved by the Real-Decree 1514/2007 of 16 November, were highlighted.

On the other hand, it was decided to analyse these companies separating them among sectors, because the difference in emissions among sectors was apparent and there is where some companies are much above others. This way, it was also seen if there is relationship between the pollution and the environmental information supplied. Later, the different items were analysed punctuating the quantity and quality of the environmental information and we proceed to analyse the results in the different companies and sectors to which these companies belong.

As conclusions, it should be highlighted that they do not accomplish with the mandatory information to be presented, neither they do with the volunteer information. Moreover, it is not clear and the quality is low and they show the most interesting information in order to please the interests' groups. So, it can be observed that the environmental information in the annual accounts is scarce.

It can be seen that: all of them present register and valuation legislation, in none of them fiscal benefits by environmental investments appear, almost all the companies offer a section in the memory dedicated to environmental information, although in few of them the recommended amount of information is shown.

It should be noticed that there is not a relationship between the position of the company in reference to emissions and the punctuation with regards to environmental information. This is because Endesa S.A and Gas Natural SDG S.A obtain a low punctuation and they have a high pollution degree.

Taking into account the conclusion that the companies present little and low quality environmental information, it can be recommended to present more and more clear one, because its competitiveness would rise and their interests' groups confidence would do the same.

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Anex 1

MEMORIA NORMAL - MODELO DE RESPUESTA NORMALIZADA
Apartado 15. «Información sobre medio ambiente»

M15

NIF: <input type="text"/>		
DENOMINACIÓN SOCIAL: <hr/> <hr/>		
	Espacio destinado para las firmas de los administradores	
Descripción del concepto		
	Ejercicio _____ (1)	Ejercicio _____ (2)
A) ACTIVOS DE NATURALEZA MEDIOAMBIENTAL		
1. Valor contable (3)	99000	
2. Amortización acumulada (3)	99001	
3. Correcciones valorativas por deterioro (3)		
3.1. Reconocidas en el ejercicio	99002	
3.2. Acumuladas	99003	
B) GASTOS INCURRIDOS PARA LA MEJORA Y PROTECCIÓN DEL MEDIO AMBIENTE		
	99004	
C) RIESGOS CUBIERTOS POR LAS PROVISIONES PARA ACTUACIONES MEDIOAMBIENTALES		
1. Provisión para actuaciones medioambientales, incluidas en provisiones		
Saldo al inicio del ejercicio	99005	
(+) Dotaciones	99006	
(-) Aplicaciones	99007	
(+/-) Otros ajustes realizados (combinaciones de negocios, etc.), de los cuales:	99008	
(+/-) Combinaciones de negocios	99009	
(+/-) Variaciones por cambios de valoración (incluidas modificaciones en el tipo de descuento)	99010	
(-) Excesos	99011	
Saldo al cierre del ejercicio	99012	
2. Derechos de reembolso reconocidos en el activo	99013	
D) INVERSIONES DEL EJERCICIO POR RAZONES MEDIOAMBIENTALES		
	99014	
E) COMPENSACIONES A RECIBIR DE TERCEROS		
	99015	
<small>(1) Ejercicio al que van referidas las cuentas anuales. (2) Ejercicio anterior. (3) Solo cumplimentar en caso de que pueda determinarse de forma individualizada.</small>		

Figure 3. Presentation of the Environmental information (chart that normalizes part of the required information in the normal memory, established by the Spanish National Chart of Accounts). Source: Royal Decree 1415/2007, on 16 November.

