



*“Corporate Sustainability Reporting (CSR) &
Corporate Environmental Sustainability Reporting (CESR)”*

MSc “Energy and Environmental Management”

from

University of Piraeus



Dalietou Evangelia

Department of Industrial Management and Technology, 2017

Η εργασία αυτή είναι πρωτότυπη και εκπονήθηκε αποκλειστικά και μόνο για την απόκτηση του συγκεκριμένου μεταπτυχιακού τίτλου.

Τα πνευματικά δικαιώματα χρησιμοποίησης του μη πρωτότυπου υλικού ΜΔΕ ανήκουν στο μεταπτυχιακό φοιτητή και το επιβλέπον μέλος ΔΕΠ εις ολόκληρο, δηλαδή εκάτερος μπορεί να κάνει χρήση αυτών χωρίς τη συναίνεση άλλου. Τα πνευματικά δικαιώματα χρησιμοποίησης του πρωτότυπου μέρους ΜΔΕ ανήκουν στον μεταπτυχιακό φοιτητή και τον επιβλέποντα από κοινού, δηλαδή δεν μπορεί ο ένας από τους δύο να κάνει χρήση αυτού χωρίς τη συναίνεση του άλλου. Κατ' εξαίρεση, επιτρέπεται η δημοσίευση του πρωτότυπου μέρους της διπλωματικής εργασίας σε επιστημονικό περιοδικό ή πρακτικά συνεδρίου από τον ένα εκ των δύο, με την προϋπόθεση ότι αναφέρονται τα ονόματα και των δύο (ή των τριών σε περίπτωση συν επιβλέποντα) ως συν-συγγραφέων. Στην περίπτωση αυτή προηγείται γραπτή ενημέρωση του μη συμμετέχοντα στη συγγραφή του επιστημονικού άρθρου. Δεν επιτρέπεται η κατά οποιοδήποτε τρόπο δημοσιοποίηση υλικού το οποίο έχει δηλωθεί εγγράφως ως απόρρητο.

Abstract

Sustainability Reporting includes a large scope of topics that affect many aspects of a company. It has been applied by companies for over 20 years and has gained great recognition since 2000. Nowadays, and especial due to the accelerating climate change that we witness, Corporate Social Responsibility (CSR), Non-Financial Reporting (ESG – Environmental, Social, Governance) and Corporate Environmental Sustainability Reporting (CESR) have become crucial issues for companies and governments. In this paper, it is discussed how these issues became crucial for companies and societies and how the European Union acts for enhancing them. Also, this paper analyzes the implementation practices, meaning the tools used for applying the sustainability reporting, with emphasis to the GRI Standards. The importance of this kind of reporting stimulates research into the benefits and the necessity of its implementation.

In the second part, we refer to the Greek legislation and we examine the case of the Athens International Airport (AIA), Eleftherios Venizelos, the Corporate Responsibility Report 2016 of which is further examined. The focus is on what is reported, how it is applied and what are the benefits of reporting for the company, the society and the environment. Finally, we track the gaps and suggest further investigation as far as small medium companies are concerned.

Limits of this research

Since the topic of Corporate Sustainability Reporting (CSR) is a vast research area, we will limit our research focusing on Environmental Sustainability Reporting, within the EU and the Greek reality, making a presentation of the annual sustainability report of Athens International Airport (AIA).

I would like to thank my family for supporting me during the completion of this Master Programme, and particularly my grandfather Christo for motivating me!

Also, I would like to thank my professor, Mr Psychogio Dimitrio, for supporting me during the completion of this master thesis.

Especially, I would like to thank Mr Papademetriou Paki (Corporate Quality Manager at the AIA-Athens International Airport) for his time, his advices and all the valuable information that he provided to me in order to complete this master thesis.

Finally, I would like to thank Mrs Tsagkaraki Mairy (Head of Human Resources at Roche Diagnostics Hellas) for giving me the opportunity to meet with Mr Papademetriou Paki and Mr Maragkogianni Konstantino (KKS Advisors) for his valuable advices.

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Introduction

Sustainability is a concept that concerns the humanity during, at least, the past two decades. As reported by the International Institute for Sustainable Development - IISD (2017) and Siew (2015), one of the first, commonly accepted definitions of sustainability comes from the World Commission on Environment and Development (WCED) in 1987, in the “*Our common Future*” release, known as the *Burndtland Report*, where sustainable development is defined as “*the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.*” It contains within it two key concepts, the concept of **needs** and the idea of **limitations** (IISD, 2017; Siew 2015). In the business context, the IISD gives another definition, referring to sustainability as “*adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future*” (Siew 2015).

Counting over 150 years of industrial development, which led to intense environmental pollution and pressure on natural resources, the importance of a sustainable future has been realized (Glavič & Lukman 2007). Crucial environmental problems have political and economic impacts (Hörisch et al. 2015). Heede (2014) has pointed out that from 1751 to 2010, 90 companies are responsible for the emission of nearly two thirds of the worldwide methane and carbon dioxide, and suggests that companies have to reduce the level of their environmental impacts for a sustainable future (Hörisch et al. 2015). Nowadays, the concept of sustainable development in literature includes terms like cleaner production, pollution prevention, pollution control, minimizing natural resources usage, eco-design, circular economy and others (Glavič & Lukman 2007).

Since 1960s, where problems such as air and water pollution raised great concerns, the need of international cooperation emerged. Many actions have been taken to mitigate the problem in a worldwide level. Part of these actions were a series of Conferences and agreements that set the path for a more sustainable future.

The United Nations Conference on the Human Environment (UNCHE), which took place at Stockholm in 1972, known as the *Stockholm Conference*, was the first coordinated attempt to discuss an international issue at a global level. The goal of this Conference was to coordinate global efforts for the preservation and improvement of

the human environment (UNEP, 2017). In 1992, the United Nations Conference on Environment and Development (UNCED), took place at Rio de Janeiro, known as the *Rio Conference* or *Earth Summit*. The message of the Summit is that a shift in our attitudes and behavior is mandatory, for bringing about the necessary changes (UN, 1992). An important achievement of the Earth Summit was the *United Nations Framework Convention on Climate Change (UNFCCC)*, which in turn led to the Kyoto Protocol and the Paris Agreement. Also, the *Agenda 21*, which is a guide for action to achieve sustainable development globally, was another important outcome of the Rio Conference (Wikipedia 2017). According to the United Nations Global Compact (UNGC), ten principles derived from the Rio Declaration on Environment and Development. These principles are analyzed in Chapter 4 (UNGC 2017). The *Kyoto Protocol*, adopted in Kyoto, Japan, on 11 December 1997, is an international agreement linked to the *UNFCCC*, which commits its Parties by setting *internationally binding emission reduction targets*, which entered into force on 16 February 2005. According to the Protocol and under the principle of "*common but differentiated responsibilities*", developed nations take a heavier burden on, because of their intense industrial activity which led to high levels of GHG emissions in the atmosphere (UNFCCC 2017). On 20-22 June 2012, the *United Nations Conference on Sustainable Development*, also known as or *Rio+20*, took place in Brazil. The Conference resulted in clear and practical measures for **implementing** sustainable development. Member States decided to launch a process to develop a set of *Sustainable Development Goals (SDGs)*, which would build upon the *Millennium Development Goals* and converge with the post 2015 development agenda.



Figure 1. The 17 *Sustainable Development Goals (SDGs)*, UNGC
(<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>)

Additionally, and among others, the Conference adopted *guidelines on green economy policies*, governments decided to establish an intergovernmental process under the General Assembly to prepare options on a strategy for *sustainable development financing*, agreed to establish a *high-level political forum for sustainable development* and they also adopted the 10-year framework of programs on sustainable consumption and production patterns (UN 2017).

In *Paris*, on December 2015, the 21st Conference of Parties (*COP21*) of the UNFCCC took place. The outcome of this conference is the *Paris Agreement* (Accord de Paris), which is considered as “the world's first comprehensive climate agreement”. It is an agreement within the *UNFCCC* which deals with *greenhouse gases emissions mitigation* (which leads to holding the increase in the global temperature in a certain level), *adaptation* and *finance* starting in the year 2020 (Wikipedia 2017). Additionally, under the Paris Agreement of December 2015, countries committed to *peak global greenhouse gas (GHG) emissions* as soon as possible and to achieve global carbon neutrality between 2050 and 2100, to set *national targets* to reduce carbon emissions, known as Nationally Determined Contributions (NDCs), and update them every five years, to *report transparently* on their carbon reduction progress, to provide *financial assistance* for poorer countries to fund low-carbon growth and adapt to the effects of climate change, to provide vulnerable countries with financial assistance for loss and damage from climate change (KPMG-Conference 2016). Companies play a crucial role as far as emissions are concerned and reducing their emissions means reducing countries emissions according to their target. The agreement was signed by 194 UNFCCC countries. On December 2016, 122 of these countries ratified the agreement and that number of countries produce enough of the world's greenhouse gases for the agreement to enter into force. The agreement went into effect on 4 November 2016. Indicatively we mention that China is responsible for the 20,09% of the greenhouse gases emissions worldwide, the United States for the 17,89%, Russia for the 7,53%, India for the 4,10%, Japan for the 3,79%, Germany for the 2,56%, Brazil for the 2,48% and Greece for the 0,28% (Wikipedia 2017). COP22, in November 2016, focused on progressing the Paris Agreement, by developing the ‘*Paris rule book*’. This rule book covers issues including Mitigation, Transparency, Global stock take, Implementation and Compliance, the market and non-market mechanisms and Finance. The outcome of

this Conference was the *Marrakech Action Proclamation*, which is ‘irreversible and driven by governments, science, business and global action of all types at all levels’, and the launch of the *Marrakech Partnership for Global Climate Action*, which is an initiative to get governments to work collaboratively with businesses, city governments and other non-state actors to address climate change (KPMG International 2016).

In order to achieve a sustainable future and to fulfill the aforementioned agreements and conventions, companies must cooperate with governments and take the responsibility for the effects of their actions, to the society and the environment (*accountability*). The concept of **Corporate Social Responsibility (CSR)** derives from this need, for companies to take responsibility of their actions. A means to measure and analyze the environmental impact of a companies’ actions is Sustainability Reporting.

Chapter 1

Literature Review

Important concerns such as pollution, climate change, human rights and economic crisis, set the need of greater transparency, sustainability and responsibility of businesses all around the globe (Ernst & Young & Boston College Centre 2014).

Also, due to the pressure from different stakeholders to be more transparent about company's dealings, large listed companies have been forced to report beyond the obligatory income statement and disclose more information about their activities and their social and environmental impacts on society (Ziegler & Schröder 2010).

Sustainability reporting is a mean for achieving this goal.

The Global Reporting Initiative organization (GRI) defines sustainability reporting as *“a report published by a company or organization about the economic, environmental and social impacts caused by its everyday activities. A sustainability report also presents the organization's values and governance model, and demonstrates the link between its strategy and its commitment to a sustainable global economy.”* (Global Reporting Initiative 2017).

Another definition of sustainability report comes from Wikipedia: *“A sustainability report is an organizational report that gives information about economic and environmental - social - governance performance (ESG). Sustainability reporting is not just report generation from collected data; instead it is a method to internalize and improve an organization's commitment to sustainable development in a way that can be demonstrated to both internal and external stakeholders”* (Wikipedia 2017).

Disclosure of sustainability information by companies indicates the adoption of external reporting standards on performance indicators, strategies and practices. Corporate reporting of selected sustainability indicators has become mandatory in several European countries. Regulatory interest on this matter is estimated to increase in the future. In addition, responsibility driven investors, consumers and other stakeholders are increasingly interested in sustainability performance, which provides a rationale for voluntary sustainability disclosure. Corporations are thus progressively

taking environmental issues into account due to legislative, economic and social motivations (D'Amato et al. 2015).

Sustainability reporting is also known as non-financial reporting; triple bottom line reporting, corporate social responsibility (CSR) reporting, environmental-social-governance (ESG) reporting and more. "It is an intrinsic element of integrated reporting, combining the analysis of financial and non-financial performance" (Global Reporting Initiative 2017 ;(Siew 2015).

Sustainability reporting offers valuable information and explanation about the company's actions to a large audience. Large companies are more likely to report than small ones. A significant reason for a company to report is the demand of stakeholders for transparency on environmental and social issues. Another reason is the improvement of productivity and efficiency (which leads to financial improvement), and the laws and guidelines of the country that the company does business (Ernst & Young & Boston College Centre 2014 ; Siew 2015).

Environmental Reporting has become far more prominent in recent years due to increasing legislation and greater customer interest.

The King Report on Corporate Governance

*"The King Report on **Corporate Governance** is a ground-breaking booklet of guidelines for the governance structures and operation of companies in South Africa. It is issued by the King Committee on Corporate Governance. Three reports were issued in 1994 (King I), 2002 (King II), and 2009 (King III) and a fourth revision (King IV) in 2016. The Institute of Directors in Southern Africa (IoDSA) owns the copyright of the King Report on Corporate Governance and the King Code of Corporate Governance. Compliance with the King Reports is a requirement for companies listed on the Johannesburg Stock Exchange. The King Report on Corporate Governance has been cited as the most effective summary of the best international practices incorporate governance"* (Wikipedia 2017).

The Institute of Directors in Southern Africa (IoDSA) established in July 1993 the King Committee on Corporate Governance. The King Committee produced the first King Report on Corporate Governance (**King I Report**) which was published in 29th of November 1994. The first King Report was recognised internationally, as the most

comprehensive publication on the subject embracing the inclusive approach to corporate governance (IODSA 2016).

The King Report is also considered as the keystone for the development and the promotion of sustainability reporting.

The King Committee on Corporate Governance launched the King Report on Corporate Governance for South Africa in 2002 (**King II Report**) at an Institute of Directors (IoDSA) Conference, attended by 700 persons at the Sandton Convention Centre, 26 March 2002 (IODSA 2016).

The French Law

Since 2001, French legislation has required large companies to provide non-financial reports regarding social, environmental and governance aspects. This law has been regularly assessed so far. In 2009 and 2010, the French Parliament adopted two laws named the **Grenelle Acts**, which made the production of an annual report on CSR matters for all large companies with activities in France mandatory. Provisions for implementing these laws were adopted by the government in April 2012. This regulation was built on legislation adopted 10 years earlier and was the result of a large and lengthy consultation process with the various categories of stakeholders concerned with corporate social responsibility, taking place from 2007 until the end of 2011 (France Diplomatie 2013).

Building upon the proven New Economic Regulations (NRE) mechanism, Section 225 of the “Grenelle II” Act intends to correct these various flaws. The new requirement is that companies have to provide details in their annual reports "on how they take into account the social and environmental consequences of [their] activity and [their] social commitments in favour of sustainable development" (France Diplomatie 2013).

It is important to mention that the French Law about Sustainability Reporting was the precursor of the Group of Friends of Paragraph 47 and the European Directives about Sustainability Reporting (Parademetriou P., 2017).

The Group of Friends of Paragraph 47

According to the GRI website, **The Group of Friends of Paragraph 47** was formed by the governments of Brazil, Denmark, France and South Africa in June 2012 following the acknowledgement of the importance of corporate sustainability reporting in Paragraph 47 of the outcome document of the United Nations Conference on Sustainable Development (*Rio +20*). The group is supported by the UN Environment Programme (UNEP) and the Global Reporting Initiative (GRI) in a secretariat capacity. Its founding member governments are all pioneers in sustainability reporting practice and policy (GRI 2017).

The Group's Charter was published on 7 November 2012. It reaffirms the Group's intention to contribute to the advancement of an international culture of corporate transparency and accountability. The key-points, that the group indicates, are the following:

- The recognition that governments have a primary role to play in moving society towards a sustainable model of development, given their access to soft and hard instruments that can positively influence corporate behavior.
- The intention to bring governments and other stakeholders together to develop best practice examples of policy and regulation for promoting corporate sustainability reporting.
- That corporate sustainability reporting should become a widespread practice to allow for a transparent, well-functioning market economy and for the private sector to contribute to sustainable development.
- To promote the use of, and build upon, existing and widely-used sustainability reporting guidance, such as principles, indicators, and frameworks.
- Developing countries and Small and Medium Enterprises (SMEs) will be given particular attention in progressing on sustainability reporting if needed (GRI 2017).

Chapter 2

The legislative context of sustainability reporting within the EU

According to the *commission of the European communities*, CSR gives the opportunity to companies to combine economic, social and environmental objectives. Greater commitment to CSR on the part of European companies will enhance Europe's capacity for sustainable development. On March 22, 2006, the European Commission defined CSR as “*a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis*”. This definition was modified in the “*A renewed EU strategy 2011-14 for Corporate Social Responsibility*”, which defined CSR as “*the responsibility of enterprises for their impacts on society*”, which also appears in the United Nations’ Guiding Principles on Business and Human Rights. In the same study, it is rightly indicated that if companies are to meet their CSR targets, they have to cooperate with their stakeholders, for integrating social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy (European Commission 2011). Non-financial reporting, disclosure of non-financial information, can also provide investors with valuable information and make companies more appealing to them. A growing number of companies disclose social and environmental information. SMEs often communicate such information informally and on a voluntary basis. Efforts are being done to encourage all organizations to improve disclosure of social and environmental performance (Commition of the European Communities 2009).

As far as the EU Directives are concerned, it is important to refer that the **2003/51/EC Directive** on annual accounts requires enterprises to disclose in their annual reports environmental and employee-related information to the extent necessary for an understanding of the company's development, performance or position. All Member States agreed to exempt SMEs from this requirement (Commission of the European Communities 2005).

Non-financial reporting was also referred in the **2013/34/EU Directive**. This directive defines that financial reporting should provide a fair review of the development of the business and of its position, in a manner consistent with the size and complexity of the business. The information should include an analysis of environmental and social

aspects of the business necessary for an understanding of the undertaking's development, performance or position. However, because of the potential burden placed on small and medium-sized undertakings, it is appropriate to provide that Member States may exempt those types of undertakings from the obligation to provide non-financial information in the management report. Also, the article 19 of the 2013/34/EU Directive is mentioning that, to the extent necessary for an understanding of the undertaking's development, performance or position, the analysis shall include both financial and, where appropriate, **non- financial key performance indicators** relevant to the particular business, including information relating to **environmental and employee matters**. The management report shall, where appropriate, include references to, and additional explanations of, amounts reported in the annual financial statements. According to Article 20 of the directive, “undertakings shall include a **corporate governance statement** in their management report” (European Union Council 2013).

The European Commission recognized the need to assure improvement and high levels of transparency, for environmental and social disclosures provided by undertakings of all sectors, throughout the EU. Thus, the **2014/95/EU Directive** is amending the 2013/34/EU Directive, as regards the disclosure of non-financial and diversity information by certain large undertakings and groups. This Directive suggests that large undertakings, which during their financial year are exceeding, on their balance sheet dates, the criterion of the average number of 500 employees, shall include in the management report a non-financial statement containing information to the extent necessary for an understanding of the undertaking's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters. The 2014/95/EU Directive also gives the structure of the non-financial statement, which includes:

- “(a) a brief description of the undertaking's **business model**;*
- (b) a description of the **policies pursued** by the undertaking in relation to those matters, including due diligence processes implemented;*
- (c) the **outcome** of those policies;*
- (d) the **principal risks** related to those matters linked to the undertaking's operations including, where relevant and proportionate, its business relationships, products or*

services which are likely to cause adverse impacts in those areas, and how the undertaking manages those risks;

*(e) **non-financial key performance indicators** relevant to the particular business.”*

(European Union Council 2014).

Chapter 3

The Stakeholders

Disclosure of non-financial (social and environmental) information, can facilitate engagement with stakeholders and the identification of material sustainability risks. It is also an important element of accountability and can contribute to building public trust in companies. To meet the needs of companies and other stakeholders, information should be material, and cost-effective to collect (European Commission 2016).

Organisations are increasingly understanding the level of dependence on society's acceptance regarding their overall contribution and impacts to a broad range of stakeholders. It is increasingly the case that, in order to survive and thrive, organisations must make decisions which serve the interests of the environment and society. The task of identifying appropriate Key Performance Indicators (KPIs) should be done in consultation with key stakeholders. Without such consultation and regular engagement corporate reports are unlikely to be complete as regards material impacts of key stakeholder groups (Adams & Frost 2008).

Communicating achievements internally and externally will provide company stakeholders with the knowledge that risks and opportunities are being appropriately managed (CAS 2015).

The increasing expectations of stakeholders and investors for non-financial evaluation of companies have given prominence to the issue of value creation and how this is addressed by sustainability reporting. A company should evaluate its sustainability report and its sustainable business practices and determine how these are contributing to its economic performance. According to an EY publication, 94% of respondents believe the valuation of sustainability could be a driver of change in an organization, moving sustainability into the boardroom (EY 2014).

It is also believed that companies pay attention to powerful stakeholders and respond with meaningful disclosure strategies, whereas less powerful stakeholders are ignored or treated with short symbolic disclosures (De Villiers & Alexander 2014).

Book-keepers have a strategic approach to CSR. They understand the impacts of stakeholders' approach to CSR. They understand the impacts of stakeholders' actions, and use CSR as a tool to manage their risks (Fernandez-Feijoo et al. 2014).

Companies have to contribute to sustainable development, when making decisions considering not only economic, but also environmental and social impacts. In order to incorporate this logic into business, firms need to define strategic drivers to orient their decisions on how to satisfy their internal and external stakeholders. In this context, firms can count on technological, social and/or organizational innovations in the way they do business. Thus, sustainability strategies can propose new products and markets, redefine productivity in the value chain and build new collaborative value chain. The second dimension serves to indicate the strategic drivers towards corporate sustainability, emphasizing the main corporate objectives to implement win-win solutions to satisfy firm's stakeholders (Morioka et al. 2016).

Gallego-Álvarez & Ortas (2016) are pointing out that “culture has the greatest influence on CESR in companies most active in terms of environmental reporting. Companies aiming to align stakeholders’ demands with their environmental reporting standards should take into account the influence of the different national culture dimensions to be effective. Cultural environments which require companies to present a proactive attitude to stakeholder engagement and commitment with CESR practices are those which show low power distance, low individualism and high degree of pragmatism. This is in line with Stakeholder Theory, which suggests that companies operating in well-organized collectivist and less indulgent communities should engage with more sustainable strategic management approaches to appropriately align corporate strategy and stakeholders’ demands and to obtain the desired corporate objectives” (Gallego-Álvarez & Ortas 2016).

Although there are a lot yet to be done for applying integrated thinking into reporting, the work of the International Integrated Reporting Council (IIRC) and those who are already applying it are making a significant progress. In 2010, the Johannesburg Stock Exchange mandated integrated reporting in compliance with the King III Code of Governance Principles (2009) (EY 2010).

From 2011 to 2014, the IIRC ran a pilot program, which provided the opportunity to test and develop technical material and acted as a forum for sharing experiences between more than 100 businesses around the globe. The IIRC’s Integrated Reporting Framework was published in December 2013, providing guidance for organizations and suggesting a six capitals approach (financial, manufactured, intellectual, human, social and relationship, and natural). This means that reporting organizations might want to

consider all the stocks of value that affect, and are affected by, their operations. Thus, a company can provide a fuller picture of the way in which it creates value (EY, 2016; Forum 2010).

Chapter 4

Sustainability Management Tools

It is believed that not enough have been done yet for implementing efficient sustainable management of natural resources. Companies take a big part of responsibility for this situation. Corporate sustainability refers to the capacity of companies to contribute to global sustainable development, including economic, social and environmental aspects (Morioka et al. 2016). Furthermore, Morioka et al. (2016) suggest that the Sustainable business model (SBM) must support managers to go beyond voluntary social and environmental initiatives. They also propose a framework that help companies to assess their business model and identify innovation opportunities.

Another research supports that, nowadays, many businesses implement traditional management as long as sustainability (social, economic, environmental) reports are concerned. This research suggests a roadmap for modelling and reporting. Sustainability reporting influences the modelling process because the modelling process influences the way sustainability reports are prepared, what is included in them, and how is presented the sustainability status of the organization to the internal and external stakeholders (Ahmed & Sundaram 2012).

Hörisch J. et al. (2015) support that companies, except from developing sustainability strategies, should implement corporate sustainability by using sustainability management tools (SMTs). They also indicate that since there is a range of SMTs used in different companies and different types of SMTs are effective in reducing different environmental problems, it is vital to “know the efficacy of the SMT we use in order to increase the sustainable development efforts” (Hörisch et al. 2015).

Hörisch J. et al. (2015) also define four groups of SMTs. The first group is the ***sustainability accounting tools*** (material flow analysis, LCA, etc.) which help to track and quantify the negative environmental impacts of the company. The second group is using data from the first group to ***compare with alternative solutions or with the performance of competitors*** (eco-indicators, eco-efficiency indicators, etc.). The third group is using information from the first and the second group to ***help companies reduce their impacts in the environment*** (sustainable supply chain management, sustainable design, eco-design/design for environment, product carbon footprint, etc.). The ***communication and reporting tools*** (*Sustainability Reporting Tools – SRTs*) is the

fourth group. Communication and reporting tools are used from companies to **communicate their achievements with their stakeholders**. If companies target to reduce their negative environmental and social impacts, effective corporate environmental and sustainability management is needed (Hörisch et al. 2015).

We must notice that, according to Hörisch J. et al. (2015), Corporate Environmental Performance (CEP) is a result of SMTs implementation. Stakeholders play a crucial role in CEP, as they can provide valuable information for its improvement. Additionally, to ensure improvements in CEP, it is crucial for corporate decision-makers to know the relative usefulness of specific SMTs. It is obvious that the implementation of SMTs can be a key operational sustainability management activity (Hörisch J., et al., 2015).

Sustainability Reporting Tools (SRTs)

It is important to mention that Hörisch J. et al. (2015) pointed out that the effects of implementation of SMTs and especially of sustainability reporting tools, although frequently discussed, they have not been sufficiently studied (Hörisch et al. 2015).

Siew R.Y.J. (2015) notices that, nowadays, stakeholders are increasingly demanding for disclosures on company's environmental and social practices and the challenge for corporations is *how to measure* this kind of performance. This need has been the motivator for developing the corporate SRTs. The goal of SRTs is to promote consistency between activities, outputs, outcomes and goals. Siew R.Y.J. (2015) also notices that different corporate SRTs are required to cater for the different nature of businesses, climates, culture and resources. The rapid growth in SRTs have made them very complicated. Siew R.Y.J. (2015) also criticizes the SRTs by stating that *there is a lack of standardization both in terms of criteria and methodology proposed and this makes difficult to compare and benchmark sustainability performance of corporations* (Siew 2015).

The sustainability reporting tools (SRTs) help corporations to track their progress towards achieving sustainability goals. Global Reporting Initiative (GRI), AA1000 (AccountAbility) principles, Carbon Disclosure Project (CDP), ISO 9000 and 14001 are some of the existing SRTs. SRTs help to measure the efforts of a corporation towards sustainability (Siew 2015).

Siew R.Y.J. (2015) categorizes corporate SRTs into three groups, a) the ***Frameworks*** (principles, initiatives or guidelines), b) the ***Standards***, which are more formal documentation that indicates the requirements, specifications or characteristics, are used to ensure that sustainability efforts are consistently achieved and c) the ***Ratings & Indices***, which are third party evaluation of a corporation's sustainability or ESG performance (Siew 2015).

According to the communication paper of the European Commission “*A renewed EU strategy 2011-14 for Corporate Social Responsibility*”, there are multiple international ***frameworks*** that companies can use for the disclosure of social and environmental information, including the Global Reporting Initiative (GRI). The same paper supports that “*integrated financial and non-financial reporting represents an important goal for the medium and long term, and the Commission follows with interest the work of the International Integrated Reporting Committee*” (European Commission 2011).

a) Frameworks

According to Siew R.Y.J. (2015), some of the existing Frameworks are the Carbon Disclosure Project (CDP), the Global Compact (UNGC), the SDG Compass and the Greenhouse Gas Protocol (GHG Protocol) (Siew 2015).

The CDP

“The *Carbon Disclosure Project* began in 2000 with a London-based coordinating secretariat for institutional investors to gain insight into climate related risk of Fortune 500 publicly traded corporations by standardizing reporting procedures for climate change related activities” (Matisoff 2013). It is a private non-profit corporation which holds one of the, globally, largest database on disclosure of greenhouse gas emissions, water use and climate change strategies (Siew 2015), designed to improve transparency between corporations and investors (Matisoff 2013). The CDP is an initiative supported by investors that requests information on the risks and opportunities of climate change from the world’s largest companies on an annual basis (Sullivan & Gouldson 2012). The CDP contains information regarding firm strategy, firm perceptions of risks and opportunities, and firm behavior (Matisoff 2013). The CDP scores assess corporations only based on the quality and completeness of their disclosures, although this is not an indicative measure of corporate performance because it does not consider of a corporation's action to mitigate climate change (Siew 2015). This means that the CDP

calculates a Carbon Disclosure Score for respondents that assesses companies on the quality and completeness of their disclosures, including their internal data management practices, and publishes a Carbon Disclosure Leadership Index that includes the companies with the highest Carbon Disclosure Scores (Sullivan & Gouldson 2012). “Factors considered include corporation-specific risks and potential opportunities arising from climate change and good internal data management practices to help the corporation understand their GHG emissions”. The carbon disclosure scores are normalized to a 100-point scale (Siew 2015).

The UNGC

The *United Nations Global Compact* was launched in July 2000. It is an initiative for the development, implementation and disclosure of corporate sustainability practices. Its goal is the alignment of corporate operations with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption. The Global Compact is the world’s largest voluntary corporate responsibility and sustainability initiative, with more than 8.500 members in more than 135 countries (EY 2014).

The ten principles, through which the cooperation is pursued, are the following:

Human rights:

Principle 1: Businesses should support and respect the protection of internationally acclaimed human rights.

Principle 2: Businesses should make sure that they are not complicit in human rights abuses.

Labour:

Principle 3: Businesses should uphold the freedom of association and the effective recognition of rights to collective bargaining.

Principle 4: Businesses should uphold the elimination of all forms of forced and compulsory labour.

Principle 5: Businesses should uphold the effective abolition of child labour.

Principle 6: Businesses should uphold the elimination of discrimination in respect of employment and occupation.

Environment:

Principle 7: Businesses should support a precautionary approach to environmental challenges.

Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility.

Principle 9: Businesses should encourage development and diffusion of environmentally friendly technologies.

Anti-Corruption:

Principle 10: Businesses should work together against corruption in all its forms, including extortion and bribery

Furthermore, on the United Nations Global Compact web-site we can find a lot of information about why to join the UNGC and how to get started step by step (UNGC 2017).

The UNGC provides a universal language for corporate responsibility and provides a framework to guide all businesses regardless of size, complexity or location. The UNGC helps companies commit to, assess, define, implement, measure and communicate their sustainability strategy (81% of companies attributed progress on their sustainability work to participating in the Global Compact) (UNGC 2017).

The Small-Medium Enterprise (SMEs) can also join the UNGC, as it is a very simple process. For joining the UNGC, it only requires an application, with the commitment of the chief executive (or equivalent, for non-business entities) of the company, with the support from the Board, that the company will apply what is stated in its annual reports. Then all participants should produce an annual Communication on Progress that outlines your efforts to operate responsibly and support society. This could be part of company's sustainability or annual report, or another public document. The UNDC posts these communications on UNGC website, too. More than 28,000 have been issued by UNGC participants until today.

The UNGC web-site also provides a lot of supporting information about how SMEs can commit to sustainability goals, as well as articles and contact possibility for any supplementary question.

The SDG Compass

The SDG Compass is a tool that provides guidance for companies on how they can align their strategies as well as measure and manage their contribution to the realization of the SDGs. Developed by GRI, the UN Global Compact and the World Business Council for Sustainable Development (WBCSD), the SDG Compass incorporates feedback received through three consultation periods from companies, government agencies, academic institutions and civil society organizations worldwide. The SDG Compass website (<https://sdgcompass.org>) provides a great amount of information and guidance for companies. Specifically using the tab “Business Indicators” we can easily find the correlation of the business issues with the SDG goals. By choosing an SDG goal in the adequate tab the site appears the correspondent SDG Target, Business Theme, Type of Indicator, Indicator Source, Indicator Description and other info (SDG Compass 2017). According to Mr Papademetriou (Athens International Airport – AIA) this is a great tool because it helps companies to quickly, easily and correctly track the SDG targets related to the Business Themes that they need to evaluate and analyze. Thus, in combination with other tools, it sets the structure of their report and of their action plan (Papademetriou P., 2017).

The GHG Protocol

The *Greenhouse Gas (GHG) Protocol* is a nearly 20 years collaboration between the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI). The goal is to develop effective programs for mitigating climate change (Siew 2015).

The GHG Protocol works with governments, industry associations, NGOs, businesses, and other organizations around the world to build credible, effective, and robust GHG accounting and reporting platforms that serve as a foundation to mitigate climate change. It establishes comprehensive, global, standardized frameworks for measuring and managing emissions from private and public-sector operations, value chains, products, cities, and policies. The Greenhouse Gas Protocol provides standards, guidance, tools, and trainings for business and government leaders to quantify and manage GHG emissions and become more efficient, resilient, and prosperous (GHG Protocol 2017).

The GHG Protocol Corporate Accounting and Reporting Standard (WBCSD and WRI, 2004) provides a step-by-step guide for corporations to quantify and report on their emissions. These steps include:

- i) setting corporate goals and inventory;
- ii) setting corporation boundaries by deciding whether an equity share approach or control approach should be;
- iii) setting operational boundaries – “tracking emissions over time; managing inventory quality; accounting for GHG reductions; verifying GHG emissions and setting GHG targets, etc.” (Siew 2015).

b) Standards

Some of the Standards found in the literature are the GRI, the AA1000, ISO14001, Eco Management and Audit Scheme (EMAS), ISO 26000 and other. We have to note that the new GRI, which was considered as a framework until the previous version, is now considered a Standard and it will be analyzed as follows.

The GRI – Global Reporting Initiative

In 1987, the World Commission on Environment and Development set out an aspirational goal of sustainable development – describing it as “*development which meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Global Reporting Initiative 101 2016). The GRI was founded in 1997 by the Coalition for Environmentally Responsible Economies (CERES). The intention was to create a globally applicable sustainability reporting framework (GRI 2011 ; Siew 2015). “The Sustainability Reporting Guidelines help organizations determine what they should report on and how they should report it.” (De Villiers & Alexander 2014). According to Fernandez-Feijoo et al. (2014) the GRI is widely recognized as the most trustworthy framework for disclosing sustainable information. The GRI requires disclosures in **economic, environmental, social performance/labor practices, social performance/human rights, social performance/ society and social performance/product responsibility categories** (Fernandez-Feijoo et al. 2014).

The GRI Standards sets a common language for organizations and stakeholders, with which the economic, environmental, and social impacts of organizations can be communicated and understood. The goal is to enhance the global comparability and

quality of information on these impacts and as result enabling greater transparency and accountability of organizations. Sustainability reporting based on the GRI Standards aims provide a balanced and reasonable representation of an organization’s positive and negative contributions towards the goal of sustainable development. The available information through sustainability reporting allows internal and external **stakeholders** to form opinions and to make informed decisions about an organization’s contribution to the goal of sustainable development (Global Reporting Initiative 2016h).

There is several versions of GRI. The first set of guidelines, G1, was released in 2000, with 44 companies presenting the reports. The second set of guidelines was the G2, issued in 2002. In 2006, the G3 set of guidelines was released. G3 was developed with the participation of more than 3000 experts, who had a multi-stakeholder and multidisciplinary approach. Finally, in 2013, a new set of guidelines, G4, was released. Among other features, G4 enhances the disclosures on governance, ethics and integrity, the supply chain, anti-corruption and GHG emissions (Fernandez-Feijoo et al. 2014).

Table 1. Total Number of companies with CSR reports registered in GRI (Fernandez-Feijoo et al. 2014).

	2008		2009		2010	
	Firms	%	Firms	%	Firms	%
Africa	51	4.56%	56	3.69%	54	2.90%
Asia	187	16.73%	308	20.32%	370	19.87%
Europe	512	45.80%	687	45.32%	839	45.06%
Latin America	142	12.70%	191	12.60%	266	14.29%
North America	154	13.77%	183	12.07%	250	13.43%
Oceania	72	6.44%	91	6.00%	83	4.46%
Total	1118	100.00%	1516	100.00%	1862	100.00%

The G4 guidelines are not legally binding and are voluntary in nature. According to the GRI guidelines, a typical report should address the following areas: *vision and strategy; corporation profile; governance structure and management systems; GRI content index; performance criteria (economic, social and environmental)* (Siew 2015).

According to Siew (2015) the number of corporations using GRI's guidelines has been continuously increasing due to several reasons. Some of those reasons are:

- i) The demand for social and environmental information. The GRI guidelines may be able to significantly reduce the time and effort spent responding to disclosures on social and environmental information. By publishing publicly-available GRI reports, companies provide directly to stakeholders (i.e. institutional investors or NGOs) the desired non- financial information.
- ii) GRI-based reports are of a great quality. Several studies have shown that GRI users score higher than non-users in a benchmark of overall quality of sustainability reports.
- iii) GRI provide superior financial performance. It is believed that lower cost of equity and more accurate analysts' forecast as a direct result of more transparency (Siew 2015).

Further, an overview of the GRI standards, will be mentioned, as it is presented on the GRI 2016 release. The following figure is representative of this overview:

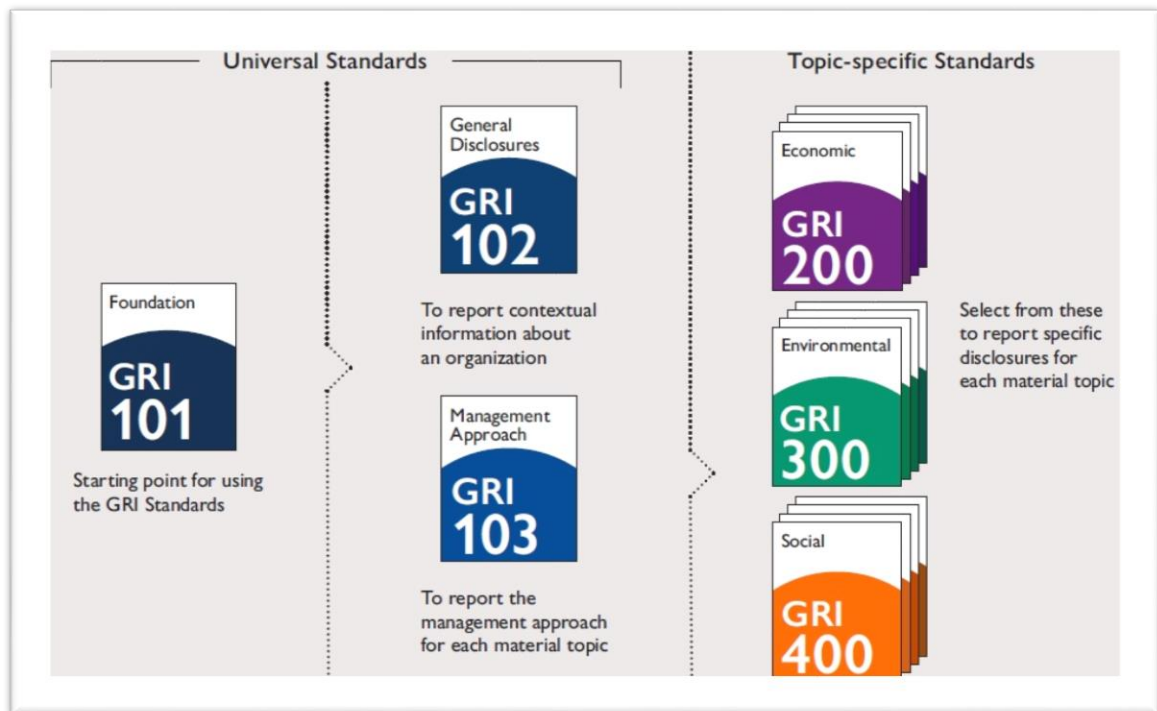


Figure 2. Overview of the GRI Standards (GSSB – Global Sustainability Standards Board, GRI, 2016)

The **100 series** includes three **universal** Standards, which are the following:

The **GRI 101** is the starting point for using the GRI standards. It sets the foundation that applies to any organization that wants to use the GRI Standards to report about its economic, environmental, and/or social impacts. More specifically it sets out the Reporting Principles for defining report content and quality. It includes requirements for preparing a sustainability report in accordance with the GRI Standards, and describes how the GRI Standards can be used and referenced. GRI 101 also includes the specific claims that are required for organizations preparing a sustainability report in accordance with the Standards, and for those using selected GRI Standards to report specific information. This Standard is applicable to an organization that intends to prepare a sustainability report in accordance with the GRI Standards; or an organization that intends to use selected GRI Standards, or parts of their content, to report on impacts related to specific economic, social, and/or environmental topics (e.g., to report on emissions only). GRI 101 can be used by an organization of any size, type, sector, or geographic location (Global Reporting Initiative 101 2016).

The **GRI 102**, is about General Disclosures. It is used to report contextual information about an organization and its sustainability reporting practices. This includes information about an organization's profile, strategy, ethics and integrity, governance, stakeholder engagement practices, and reporting process (Global Reporting initiative 102 2016).

The **GRI 103** is about Management Approach. It is used to report information about how an organization manages a material topic. It is designed to be used for each material topic in a sustainability report, including those covered by the topic-specific GRI Standards (series 200, 300, and 400) and other material topics. Applying GRI 103 with each material topic allows the organization to provide a narrative explanation of why the topic is material, where the impacts occur (the topic Boundary), and how the organization manages the impacts (Global Reporting Initiative 103 2016).

The **200 series** includes six **economic** Standards, which are the following:

GRI-201 is about economic performance, **GRI-202** is about market presence, **GRI-203** is about indirect economic impacts, **GRI-204** is about procurement practices, **GRI-**

205 is about anti-corruption and **GRI-206** is about anti-competitive behavior (Global Reporting Initiative 2016h).

The **300 series** includes eight **environmental** Standards, which are further analyzed:

GRI-301 is about Materials. This standard sets out reporting requirements on the topic of materials. The environmental dimension of sustainability concerns an organization's impacts on natural systems, including land, air, water and ecosystems. The inputs used to manufacture and package an organization's products and services can be non-renewable materials, such as minerals, metals, oil, gas, or coal; or renewable materials, such as wood or water. Both renewable and non-renewable materials can be composed of virgin or recycled input materials. The type and amount of materials the organization uses can indicate its dependence on natural resources, and the impacts it has on their availability. The organization's contribution to resource conservation can be indicated by its approach to recycling, reusing and reclaiming materials, products, and packaging. The disclosures in this Standard can provide information about an organization's impacts related to materials, and how it manages these impacts (Global Reporting Initiative 2016a).

The disclosures for the GRI -301 Standard are the *Disclosure 301-1* for Materials used by weight or volume, the *Disclosure 301-2* for Recycled input materials used and the *Disclosure 301-3* for Reclaimed products and their packaging materials. It is use along with the GRI 101, 103 and the Standard Glossary (Global Reporting Initiative 2016a).

GRI-302 addresses the topic of energy. An organization can consume energy in various forms, such as fuel, electricity, heating, cooling or steam. Energy can be self-generated or purchased from external sources and it can come from renewable sources (such as wind, hydro or solar) or from non-renewable sources (such as coal, petroleum or natural gas). Using energy more efficiently and preferring the renewable energy sources is essential for combating climate change and for lowering an organization's overall environmental footprint. Energy consumption can also occur throughout the upstream and downstream activities connected with an organization's operations. This can include consumers' use of products the organization sells, and the end-of-life treatment of these products (Global Reporting Initiative 2016b).

The disclosures in this Standard can provide information about an organization's impacts related to energy, and how it manages them. The disclosures for the GRI-302 Standard are the *Disclosure 302-1* for Energy consumption within the organization, the *Disclosure 302-2* for Energy consumption outside of the organization, the *Disclosure 302-3* for Energy intensity, the *Disclosure 302-4* for Reduction of energy consumption and the *Disclosure 302-5* for Reductions in energy requirements of products and services (Global Reporting Initiative 2016b).

GRI-303 treats the topic of water. Access to fresh water is essential for human life and wellbeing, and is recognized by the United Nations as a human right. An organization can impact water resources through its withdrawal and consumption of water. Withdrawals from a water system can affect the environment by lowering the water table, reducing the volume of water available for use, or otherwise altering the ability of an ecosystem to perform its functions. Such changes have wider impacts on the quality of life in the area, including economic and social consequences; and consequences for the local communities or indigenous peoples for whom the water source is important (Global Reporting Initiative 2016c).

The disclosures in this Standard can provide information about an organization's impacts related to water, and how it manages them. The *Disclosure 303-1* for Water withdrawal by source, the *Disclosure 303-2* for Water sources significantly affected by withdrawal of water and the *Disclosure 303-3* for Water recycled and reused. Additional disclosures that relate to this topic can also be found in GRI 306: Effluents and Waste (Global Reporting Initiative 2016c).

GRI-304 is about biodiversity. Protecting biological diversity is important for ensuring the survival of plant and animal species, genetic diversity, and natural ecosystems. In addition, natural ecosystems provide clean water and air, and contribute to food security and human health. Biodiversity also contributes directly to local livelihoods, making it essential for achieving poverty reduction, and thus sustainable development (Global Reporting Initiative 2016d).

The disclosures in this Standard can provide information about an organization's impacts related to biodiversity, and how it manages them. These disclosure are the *Disclosure 304-1* for Operational sites owned, leased, managed in, or adjacent to,

protected areas and areas of high biodiversity value outside protected areas, the *Disclosure 304-2* for Significant impacts of activities, products, and services on biodiversity, the *Disclosure 304-3* for Habitats protected or restored, the *Disclosure 304-4* for the International Union for Conservation of Nature (IUCN) Red List species and national conservation list species with habitats in areas affected by operations (Global Reporting Initiative 2016d).

GRI-305 is about emissions

GRI 305 addresses emissions into air, which are the discharge of substances from a source into the atmosphere. Types of emissions include: greenhouse gas (GHG), ozone-depleting substances (ODS), and nitrogen oxides (NOX) and sulfur oxides (SOX), among other significant air emissions (Global Reporting Initiative 2016e).

This Standard covers the following GHGs: Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF₆) and Nitrogen trifluoride (NF₃) (Global Reporting Initiative 2016e).

The reporting requirements for GHG emissions in this Standard are based on the requirements of the ‘GHG Protocol Corporate Accounting and Reporting Standard’ (‘GHG Protocol Corporate Standard’) and the ‘GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard’ (‘GHG Protocol Corporate Value Chain Standard’). These two standards are part of the GHG Protocol developed by the World Resources Institute (WRI) and the World Business Council on Sustainable Development (WBCSD) (Global Reporting Initiative 2016e).

Ozone-depleting substances (ODS): The ozone layer filters out most of the sun’s biologically harmful ultraviolet (UV-B) radiation. Observed and projected ozone depletion due to ODS generates worldwide concern. The UN Environment Programme (UNEP) ‘Montreal Protocol on Substances that Deplete the Ozone Layer’ (‘Montreal Protocol’) regulates the phase-out of ODS internationally (Global Reporting Initiative 2016e).

Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions: Pollutants such as NO_x have adverse effects on climate, ecosystems, air quality, habitats, agriculture, and human and animal health. Deterioration of air quality,

acidification, forest degradation and public health concerns have led to local and international regulations to control emissions of these pollutants (Global Reporting Initiative 2016e).

Reductions in the emission of regulated pollutants lead to improved health conditions for workers and local communities and can enhance relations with affected stakeholders. In regions with emission caps, the volume of emissions also has direct cost implications (Global Reporting Initiative 2016e).

Other significant air emissions include, for example, persistent organic pollutants or articulate matter, as well as air emissions that are regulated under international conventions and/or national laws or regulations, including those listed on an organization's environmental permits (Global Reporting Initiative 2016e).

The *Disclosure 305-1* for Direct (Scope 1) GHG emissions, the *Disclosure 305-2* for Energy indirect (Scope 2) GHG emissions, the *Disclosure 305-3* for Other indirect (Scope 3) GHG emissions, the *Disclosure 305-4* for GHG emissions intensity, the *Disclosure 305-5* for Reduction of GHG emissions, the *Disclosure 305-6* for Emissions of ozone-depleting substances (ODS) and the *Disclosure 305-7* Nitrogen oxides (NO_x), sulfur oxides (SO_x), and other significant air emissions (Global Reporting Initiative 2016e).

GRI-306 addresses the topic of effluents and waste. This includes water discharges; the generation, treatment and disposal of waste; and spills of chemicals, oils, fuels, and other substances. The impacts of water discharges vary depending on the quantity, quality, and destination of the discharge. The unmanaged discharge of effluents with a high chemical or nutrient load (principally nitrogen, phosphorous, or potassium) can affect aquatic habitats, the quality of an available water supply, and an organization's relationship with communities and other water users. The generation, treatment and disposal of waste – including its improper transportation – can also pose harm to human health and the environment. This is of particular concern if waste is transported to countries lacking the infrastructure and regulations to handle it. Spills of chemicals, oils, and fuels, among other substances, can potentially affect soil, water, air, biodiversity, and human health. These concepts are covered by the Basel and Ramsar

Conventions, and in key instruments of the International Maritime Organization (Global Reporting Initiative 306 2016).

The GRI 306 contains the *Disclosure 306-1* for Water discharge by quality and destination, the *Disclosure 306-2* for Waste by type and disposal method, the *Disclosure 306-3* for Significant spills, the *Disclosure 306-4* for Transport of hazardous waste, the *Disclosure 306-5* for Water bodies affected by water discharges and/or runoff (Global Reporting Initiative 306 2016).

GRI-307 treats the subject of environmental compliance, covering an organization's compliance with environmental laws and/or regulations. This includes compliance with international declarations, conventions and treaties, as well as national, sub-national, regional, and local regulations. The disclosures in this Standard can provide information on an organization's compliance with applicable laws and regulations, and with other instruments concerned with environmental protection. Additional disclosures that relate to this topic can also be found in GRI 419: Socioeconomic Compliance (Global Reporting Initiative 2016f).

The GRI 307 contains the *Disclosure 307-1* for Non-compliance with environmental laws and regulations (Global Reporting Initiative 2016f).

GRI 308 addresses the topic of supplier environmental assessment. An organization might be involved with impacts either about supplier environmental assessment through its own activities or as a result of its business relationships with other parties. Due diligence is expected of an organization in order to prevent and mitigate negative environmental impacts in the supply chain. These include impacts the organization either causes or contributes to, or that are directly linked to its activities, products, or services by its relationship with a supplier. These concepts are covered in key instruments of the United Nations. The disclosures in this Standard can provide information about an organization's approach to preventing and mitigating negative environmental impacts in its supply chain. Suppliers can be assessed for a range of environmental criteria such as impacts related to water, emissions, or energy. Additional disclosures that relate to this topic can also be found in GRI 414: Supplier Social Assessment (Global Reporting Initiative 2016g).

The GRI 308 contains the *Disclosure 308-1* for New suppliers that were screened using environmental criteria and the *Disclosure 308-2* for Negative environmental impacts in the supply chain and actions taken (Global Reporting Initiative 2016g).

The **400 series** includes nineteen **social** Standards, which are the following:

GRI-401 is about employment, **GRI-402** is about labor management relations, **GRI-403** is about occupational health and safety, **GRI-404** is about training and education, **GRI-405** is about diversity and equal opportunity, **GRI-406** is about non-discrimination, **GRI-407** is about freedom of association and collective bargaining, **GRI-408** is about child labor, **GRI-409** is about forced or compulsory labor, **GRI-410** is about security practices, **GRI-411** is about rights of indigenous peoples, **GRI-412** is about human rights assessment, **GRI-413** is about local communities, **GRI-414** is about supplier social assessment, **GRI-415** about public policy, **GRI-416** is about customer health and safety, **GRI-417** is about marketing and labeling, **GRI-418** is about customer privacy and **GRI-419** is about socioeconomic compliance (Global Reporting Initiative 2016h).

Finally, the GRI 2016, along with the GRI 100, 200, 300 and 400 series, has released the *GRI Standards Glossary*, in which every term mentioned on the prementioned series is explained (Global Reporting Initiative 2016h).

The AA1000 (AccountAbility) principles

The AA1000 was originally structured to ‘provide organizations with an internationally accepted, freely available set of principles to frame and structure the way in which they understand, govern, administer, implement, evaluate and communicate their accountability’. It is constituted by three principles: the ‘Principle of **Inclusivity**’, the ‘Principle of **Materiality**’ and the ‘Principle of **Responsiveness**’ (Siew 2015).

A corporation is considered to adhere to the ‘Principle of Inclusivity’ when it is committed to be accountable to those whom it has an impact or have an impact on it, it has in place a process for stakeholder participation, it has in place necessary competencies and resources to conduct the process for stakeholder participation and when the engagement with stakeholders will result in them developing and achieving an accountable and strategic response to sustainability (Siew 2015).

A corporation is considered to adhere to the ‘Principle of Materiality’ when it has a materiality determination process in place (determines criteria from a wide range of sources such as the needs and concerns of stakeholders, societal norms, financial considerations etc.), it has in place or access to the necessary competencies and resources to apply the materiality determination process, and when the materiality determination process leads to a balanced understanding and prioritization of material sustainability criteria (Siew 2015).

A corporation is considered to adhere to the ‘Principle of Responsiveness’ when it has in place a process for developing responses, it has access to necessary competencies and resources that would assist the corporation in achieving their commitments, it responds in a comprehensive (addresses the needs, concerns and expectations of stakeholders), balanced and timely manner and when it has a process in place to communicate with stakeholders (Siew 2015).

The AA1000 process standard suggests stakeholders should be involved in the selection and review of KPIs and that meaningful stakeholder engagement is one where stakeholders are involved in defining the terms of the engagement and are able to express their view without fear or penalty (Adams & Frost 2008).

ISO 14001:2004

“The ISO 14001:2004 provides requirement for environmental management, which can be used as a common reference for communicating about environmental criteria with stakeholders. The standard itself does not specify the levels of environmental performance because this is believed to be specific depending on the nature of each activity” (Siew 2015).

ISO 9001:2008

“The ISO 9001:2008 provides the requirements for quality management. To qualify, an entity must demonstrate an ability to consistently provide products that meet the needs of the customer, and adhere to applicable statutory and regulatory requirements. The entity must also demonstrate commitment to enhancing customer satisfaction, and have in place a process for continuous improvement” (Siew 2015).

The Eco Management and Audit Scheme (EMAS)

“The EMAS The Eco Management and Audit Scheme (EMAS) is a standard which encourages entities to evaluate, report and improve on their environmental performance. Environmental performance reporting must be done through an independently verified third party” (Siew 2015).

ISO 26000

The ISO 26000 standard outlines seven principles of socially responsible behavior: accountability, transparency, ethical behavior, respect for stakeholder interests, fulfillment of the rule of law, respect for international norms of behavior, and respect for human rights. This concept can be approached from the point of view of companies as well as from the point of view of stakeholders, with consumers representing one of the groups most often discussed in literature (Fernandez-Feijoo et al. 2014). However, this guidance does not contain requirements and is not auditable or certifiable (EY 2014).

c) Ratings and Indices

Referring to Rating and Indices, Siew R.Y.J., 2015, examines among other the Dow Jones Sustainability Index (DJSI), the FTSE4Good index and the Bloomberg ESG disclosure scores.

The Dow Jones Sustainability Index (DJSI)

The Dow Jones Sustainability Index (DJSI) was first launched in 1999 as a global sustainability benchmark. The stock performance of the world's leading corporations in terms of social, economic and environmental (the DJSI family) is monitored on a continuous basis (Siew 2015).

Socially responsible investing (SRI), also called ethical or sustainable, is an investment strategy that refers to the practice of choosing stocks on the basis of environmental and social screens (Ziegler & Schröder 2010).

In 1999, the Dow Jones Sustainability Index was launched and currently is the world's most reliable benchmark for sustainability. The DJSI family indexes comprise five different indexes from different economic zones. Listing considers a number of factors like business economics, corporate and risk management, branding, labour policies, social and environmental performance, etc. (Bonson & Bednarova, 2014). Throughout

the year the companies are continuously monitored and, if necessary, downrated or excluded from the Index. A variety of sources is used for the assessment and for cross-checking of information, including company questionnaires, company documents, publicly available information, stakeholder relations, media screening and company interviews. The selection process is externally verified and the methodology is reviewed yearly to capture the increasing knowledge and standardisation of sustainability issues and to align it with ongoing initiatives such as the Global Reporting Initiative (Knoepfel 2001).

The more professional institutional investors are entering this market, the bigger is the need for active screening of portfolios and for consistent rating and benchmarking tools to assess the environmental, social and economic performance of companies and the implications for value creation for investors. This has prompted Dow Jones Indexes and SAM Sustainability Group to launch the first global sustainability equity index in September 1999: The Dow Jones Sustainability Group Index $\check{D}JSGI.2$ (Knoepfel 2001).

The FTSE4Good Index

The FTSE4Good Index is a series of ethical investment stock market indices launched in 2001 by the FTSE Group. A number of stock market indices are available, for example covering UK shares, US shares, European markets and Japan, with inclusion based on a range of corporate social responsibility criteria. Research for the indices is supported by the Ethical Investment Research Services (EIRIS) (Wikipedia 2016).

The FTSE4Good inclusion criteria was developed with similar aims as all the other tools which is to provide investors a means by which they could identify and invest in corporations that meet the minimum requirement of socially responsible practices. To be included in the FTSE4Good Index Series, corporations must be able to meet bare requirements in five core areas namely working towards environmental sustainability, upholding and supporting universal human rights, ensuring good supply chain labour standards, countering bribery and mitigating climate change. (Siew 2015).

The Bloomberg ESG

“In an effort to encourage corporations to disclose more ESG data, Bloomberg decided to score corporations based on their ESG data disclosure. The Bloomberg ESG Disclosure Score out of a 100 is based on GRI's guidelines. There are four major categories namely Environmental Disclosure Score, Social Disclosure Score, Governance Disclosure Score and ESG Disclosure score (overall combination of Environmental, Social and Governance Disclosure Scores). Weightings differ by sectors” (Siew 2015).

Chapter 5

Benefits of Sustainability Reporting

“Sustainability reporting can help organizations to measure, understand and communicate their economic, environmental, social and governance performance, and then set goals, and manage change more effectively. A sustainability report is the key platform for communicating sustainability performance and impacts – whether positive or negative” (Global Reporting 2017).

Organizations are then able to control these impacts, improve operating efficiency, manage natural resources and waste reduction and also predict and manage risks. Sustainability reporting is a key element of shareholder, employee and stakeholder relations. It can foster investors’ confidence, trust and employee loyalty and company’s reputation. It also may provide company’s better access to capital (information provided to the stakeholders and affects socially responsible investment (SRI)). According to EY “In a review of more than 7,000 sustainability reports from around the globe, researchers found that sustainability disclosures are being used to help analysts determine firm values and that sustainability disclosures may reduce forecast inaccuracy by roughly 10%.”. According to the business consultant Christopher Meyer, we live at the “age of transparency” companies that will not own up to their responsibilities will be found in a very difficult situation (Ernst & Young & Boston College Centre 2014).

Sustainability reporting is increasing transparency, enhances brand value, reputation and legitimacy, makes the corporation more competitive, motivates employees and enables corporate information and control processes. It is widely recognized as an important factor of corporate sustainability (Hahn & Kühnen 2013).

Chapter 6

The Greek Legislation

The Greek legislation about non-financial reports is aligned with the aforementioned EU Directives and translated into the law 4403/2016.

Also, the National Action Plan for Corporate Social Responsibility was set into public deliberation since 2014. At 11th July 2017, there was a second public deliberation on the National Action Plan for Corporate Responsibility and Accountable Entrepreneurship (Ministry of Economy and Development 2017).

The outcome of the two public deliberation processes along with the 4403/2016 law will form the environment in which Greek companies will have to adapt in the future, as far as Corporate Social Responsibility and Accountability is concerned.

The Athens International Airport S.A. (Eleftherios Venizelos) Corporate Responsibility Report 2016

The Corporate Responsibility Report of Athens International Airport (AIA) is structured in accordance with the GRI, the AA1000 principles, specifically with the Inclusivity-Materiality-Responsiveness principles, and UNGC for Communication on Progress (CoP), along with the GRI Airport Operators Sector Supplement. The GRI Airport Operators Sector Supplement is a document that contains a set of disclosures for use by all organizations in the Airport Operators sector. The disclosures cover key aspects of sustainability performance that are meaningful and relevant to the Airport Operators sector and which are not sufficiently covered in the G4 Guidelines. According to Mr Papademetriou P. the AIA company has chosen the GRI Standards because they are the most complete and credible standards for a company to follow.

AIA engages in external assurance of its disclosures for accuracy, completeness and adhesion to applicable guidelines and standards through the engagement of an independent audit firm. The outcome of this process is included as a separate Assurance Statement. Ernst & Young (EY) Hellas is signing the Independent Assurance Statement for the AIA CSR. EY also makes the Assurance Comments on the report, where needed, which are significantly important and are taken into account by the AIA company.

The Athens International Airport (AIA) Company responds to the growing challenges by practicing effective corporate governance and implementing adaptable and

innovative entrepreneurial solutions. The goal is to run a good business with a special interest for social and environmental management, responding to internal and external stakeholders. The disclosure process is a crucial part of the AIA Company, especial for understanding the internal and external impacts of the airport business.

The report analyses the **Corporate Identity** (shareholders, stakeholders, corporate governance and corporate responsibility governance), the **Business** (economic performance, indirect economic impacts, aeronautical business, non-aeronautical business, procurement, business continuity and emergency preparedness, customer safety, airport security, service quality, and customer privacy), the **Environment** (environmental management and compliance, energy, emissions and climate change, noise, water, effluents and waste, biodiversity), the **People** (the team, occupational health and safety, employees' training and development, employee benefits, employees and society), the **Citizenship** (community engagement, art and culture, children, social commitment, digital engagement) and finally the **Assurance Statement**.

In 2016 the AIA recorded the highest passenger traffic of all times, counting more than 20 million passengers, which is translated in an increase of 10,7% versus 2015. It is also remarkable that the AIA achieved to increase its financial performance as well as its Sustainability Value.

According to the AIAs Corporate Sustainability Report 2016, there is a commitment for protecting the natural environment and contributing to the global effort against climate change. This commitment is verified for 2016, as it was for the previous years too. This is achieved by implementing best practices to operate its facilities and equipment more efficiently, as well as investing in energy-saving technology.

Some of the most important aspects of the AIA Corporate Responsibility Report are further analyzed.

According to the report, AIA is engaging its stakeholders in a balanced and respectful manner, comprehending their requirements and expectations and integrating this input in its strategy development and deployment. There is a process during which the company receives feedback from its stakeholders. This feedback is evaluated by the Management, which actively responds to it. The company heavily relies on the cooperation with the stakeholders and is facilitating this process through a structure of engagement practices. As an example of such practices is the telephone hotline for

communication with the local society and various satisfaction surveys referring to the passengers and other consumers.

On the report, we track the Stakeholder Map, where we can see all the internal and external stakeholders of the AIA analytically categorized. The green colour indicates the internal stakeholders and the pink the external stakeholders. The internal stakeholders for the AIA are the passengers, the shareholders, the airlines, the employees, the users and handlers, the concessionaires, the state authorities and the suppliers. The external stakeholders are the local community, the greater society, the international aviation community and suppliers. In the map, it is also recorded in bright green and bright pink colour, accordingly, how the stakeholders interact with the AIA company.

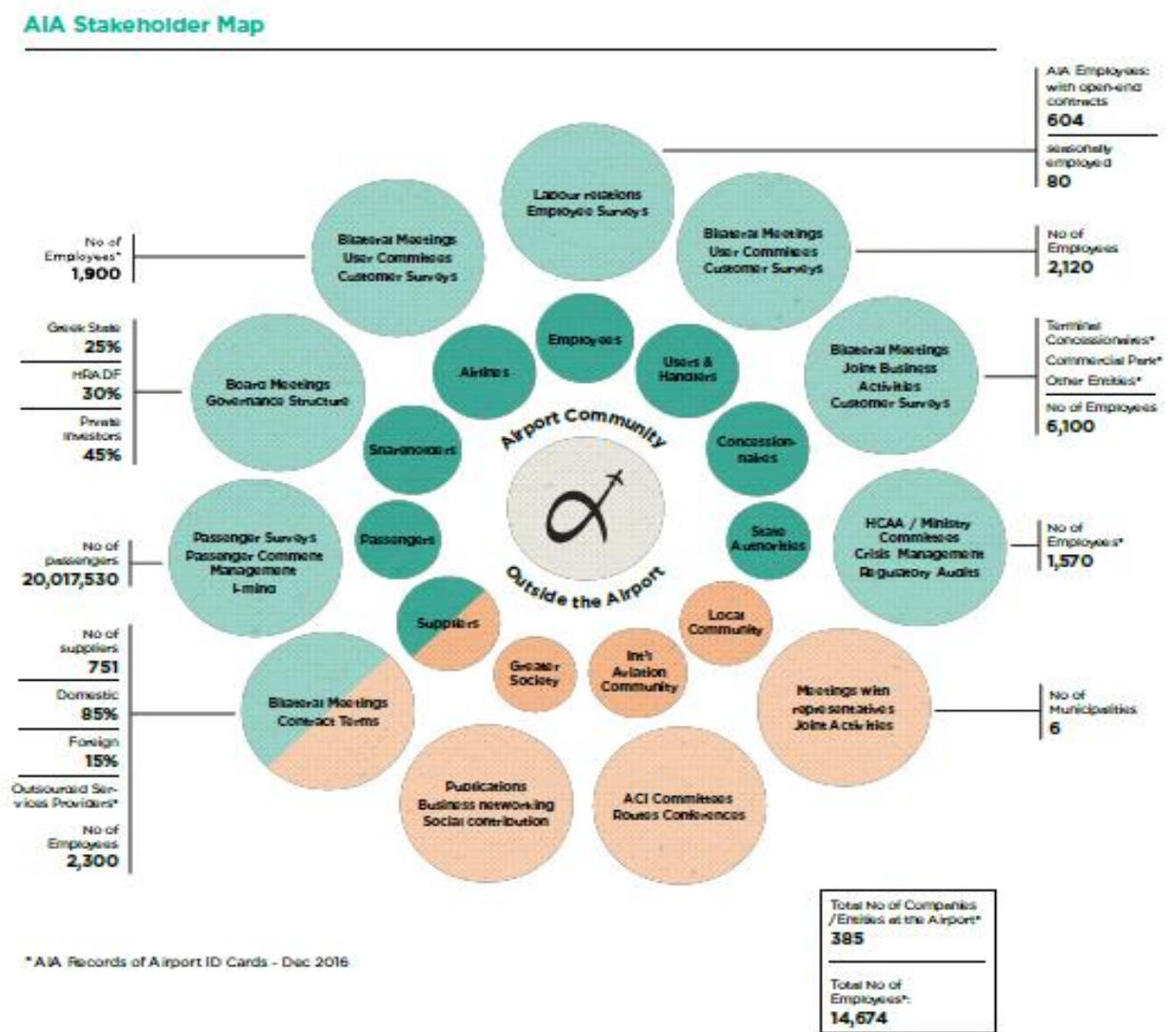


Figure 3. AIA Stakeholder Map (AIA Corporate Responsibility Report, 2016)

Materiality Analysis

The AIA acknowledges its role as a responsible company for creating sustainable value for its stakeholders. The AIA approaches Corporate Responsibility (CR) in an integrated way aiming at promoting the sustainability of all aspects of its operation and development. The AIA's approach for Corporate Responsibility (CR) is reflected in the CR Policy, which is deployed through a contemporary 3-level CR governance structure: CR **Strategy** for Materiality Analysis and CR Action Plan, CR **Integration** for alignment with standards and reporting and CR **Implementation** for embedding across AIA Units & Departments.

The CR Strategy is developed in line with the corporate mission, objectives and targets and following the assessment of current conditions (market trends, economic status, social needs, environmental challenges, etc.) best practices and prevailing standards, findings and recommendations arising from the CR assurance process and/or any other input from benchmarking exercises. CR Strategy is reflected upon the annual Materiality Analysis and the resulting CR Action Plan, which is approved by AIA Senior Management and communicated through the annual CR Report. The CR Committee, formed by designated Management representatives, is primarily responsible for the development and review of the CR Policy and CR Strategy as an **output** of the annual Materiality Analysis and CR Action Plan.

The Materiality analysis, in the context of corporate responsibility governance, is of a great importance for the completion of the Sustainability Report.

The Materiality Analysis is the redefinition and prioritization of the material issues, which have a significant impact on the Company and Sustainable Development and also have significant influence on its stakeholders. The identification of these issues sets the priority areas for the CR Action Plan and as a result it defines the content of the CR report.

The Materiality Evaluation Model is structured as it is shown below, in table 2.

Table 2. AIA Materiality Evaluation Model (AIA Corporate Responsibility Report, 2016)

Materiality Evaluation Model

IMPACT		INFLUENCE	
Evaluation of the issue's significance of Impact, considering economic, environmental & social aspects of each issue, both internally and externally		Evaluation of the issue's Influence on Stakeholders' assessment of AIA in regards to airport operation	
Internal Impact (relates to AIA's Financial and Non-Financial Performance with significant impact on its business model, its ability to achieve objectives and/or its reputation)	External Impact (AIA's level of contribution to Sustainable Development and the UN SDGs) considering the related scale of impact (a/p community, national, global)	Influence evaluation (by the CR Committee) in regards to the influence to AIA internal stakeholders and general society	Influence evaluation (by members of airport community) in regards to the influence to Airport Community stakeholders
4. High impact (current) / Critical issue		4. High influence	
3. Medium impact (current) or potentially high		3. Medium influence	
2. Low impact (current) or potentially medium		2. Low influence	
1. Marginal impact		1. Marginal influence	

The, the most crucial stakeholders, internal and external, including the airport community stakeholders, were asked to evaluate these issues based on two parameters, the “Impact” (Significance of impact to sustainable development) and the “Influence” (Influence on Stakeholders’ Assessment) – in line with the provisions of the GRI Standards and the GRI-G4 AOSD. The output of this exercise is the Materiality Map.

For 2016 the AIA company tracked 23 sustainability issues, of which 13 are evaluated as Material. At figure 5, Materiality Map, are reflected the results of this exercise. On the up-right side of the map are shown, with darker grey colour, the most crucial sustainability issues of the AIA company, which are evaluated as Material.

AIA Materiality Map

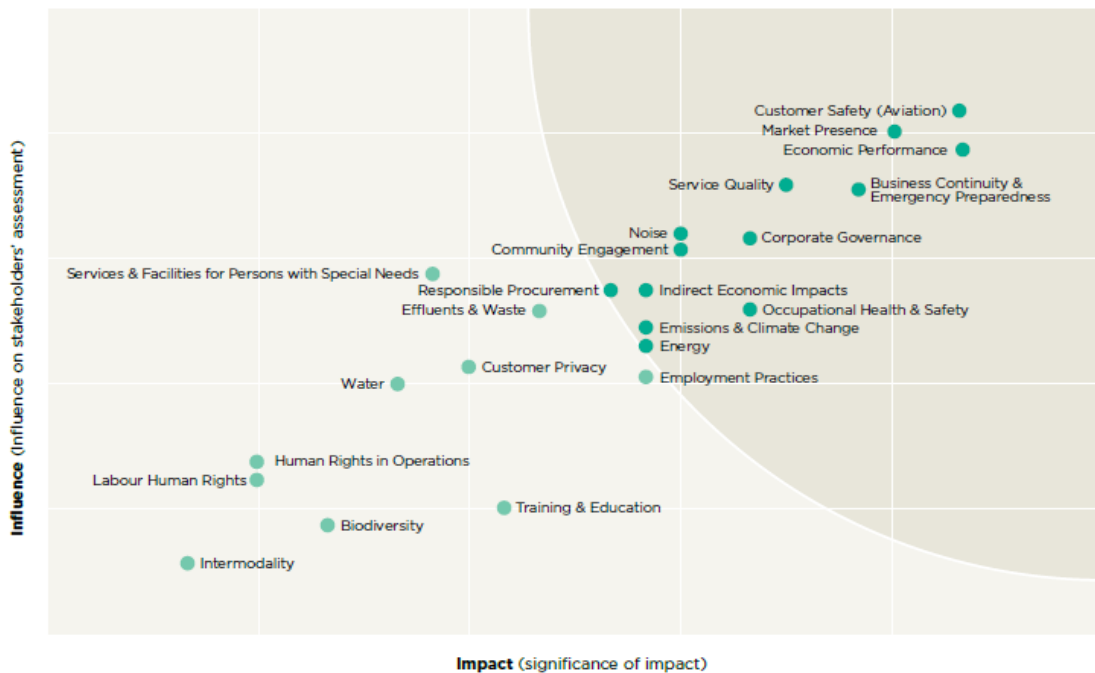


Figure 4. AIA Materiality Map (AIA Corporate Responsibility Report, 2016)

Emphasis is placed on the aspects identified as Material and the CR Assurance Engagement process focuses on those issues.

The 13 Material issues, which will be further analysed, are the Customer Safety, Market Presence, Economic Performance, Business Continuity and Emergency Preparedness, Service Quality, Corporate Governance, Noise, Community Engagement, Indirect Economic Impacts, Occupational Health and Safety, Emissions and Climate Change, Occupational Procurement and Energy.

In line to the company's commitment to the United Nations Global Compact, AIA adopts and upholds the related sustainability principles for Human Rights, Labour Relations, Environmental Impact and Anti-Corruption.

The SDGs can be directly correlated to business activities using the SDG Compass "Business Indicators" tab on the SDG Compass website. Thus, the 23 sustainability issues are directly correlated with the Sustainable Development Goals. The correlation of the 13 Material (most important) issues with the SDGs is shown at figure 6.

AIA's Material Issues and Correlation with the Global Sustainable Development Goals

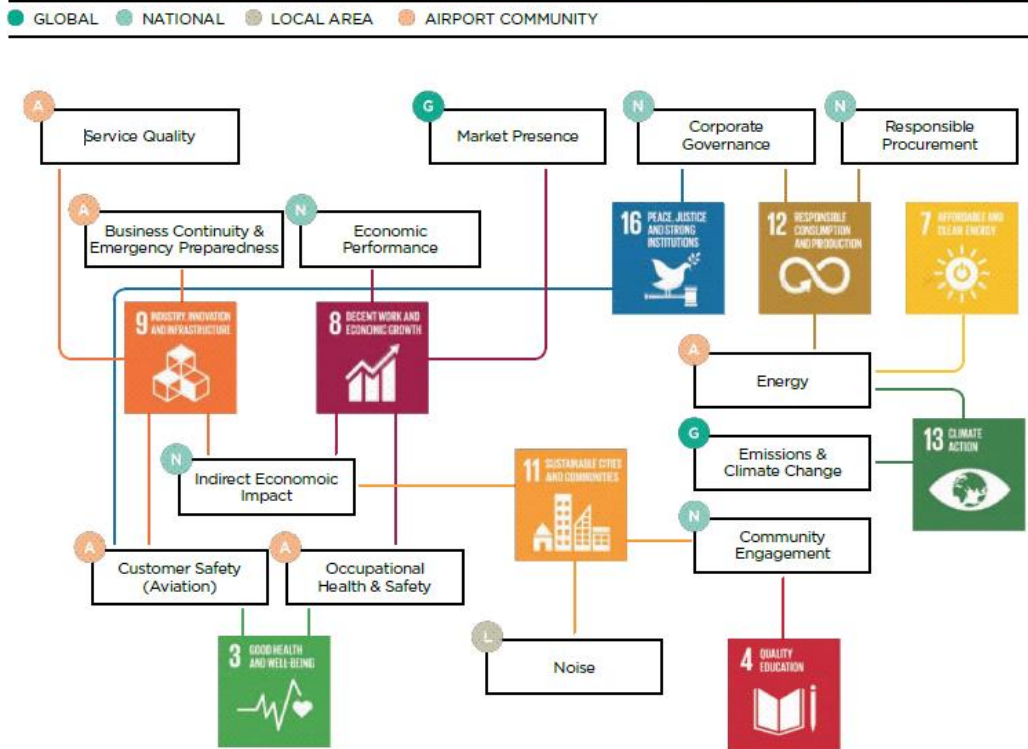


Figure 5. AIA Material Issues and Correlation with the Global Sustainable Development Goals (AIA Corporate Responsibility Report, 2016)

The report also states that “Regardless of size and sector, all companies can contribute to the attainment of the SDGs, by carrying out business in a responsible manner while pursuing opportunities to address societal challenges through innovation and collaboration. Global challenges – ranging from climate, water and food crises, to poverty, conflict and inequality – drive the transformation of business models and the embedding of globally acknowledged values in everyday business”.

Action Plan

Connected with the Materiality Analysis, the CR Action Plan gives an indication of activities carried out by AIA in 2016 and planned to be undertaken in 2017, in relation to each of the non-financial Material Issues.

University of Piraeus
Department of Industrial Management and Technology

Table 3. The AIAs Action plan (AIA Corporate Responsibility Report, 2016)

Material Issue	Actual Activities 2016	Planned Activities 2017
Customer Safety (Aviation)	<ul style="list-style-type: none"> Aviation Safety target of the Corporate Scorecard 2016 was attained Preparations progressed for complying with the new EASA Aerodrome Rules and for advancing aviation safety practices Regular inspections for all public and technical areas. In 2016, 253 audits were carried out to various airport community stakeholders. 	<ul style="list-style-type: none"> Aviation Safety Management System update (multiple actions incl. those leading to certification according to the EASA Aerodrome Rules) Safety promotion initiatives, Hazard Identification and Risk Assessments, Health & Safety inspections in public areas
Market Presence	<ul style="list-style-type: none"> Overall flights in 2016: +7.4% vs. 2015, direct connections with 125 destinations in 48 countries, operated by a total of 60 carriers. 13 different incentives (3 new introduced) for development and sustainability in 2016. 3 new airlines and 10 new routes were added to the airport's network. AIA awarded best airport in the 4-20 million passengers' category (2016 "Routes Marketing Awards Europe" and "Routes World") 	<ul style="list-style-type: none"> Incentives Plan (Developmental & Targeted Incentives) Route Development / Marketing Support Policies
Business Continuity & Emergency Preparedness	<ul style="list-style-type: none"> Critical Systems Efficiency targets of the Corporate Scorecard 2016 were attained. Full-Scale Emergency Exercise titled "Aircraft Accident on Airport" successfully carried out and attended by more than 250 airport community members. 	<ul style="list-style-type: none"> Emergency Crisis Planning training / workshops / exercises plan Action to attain availability targets for Critical Systems
Corporate Governance	<ul style="list-style-type: none"> Updated Corporate Responsibility Policy, further progressing Materiality Analysis in line with the new GRI Sustainability Reporting Standards and the SDGs of the United Nations. 	<ul style="list-style-type: none"> Risk Management & Business Continuity activities Code of Conduct e-training
Service Quality	<ul style="list-style-type: none"> Intra-Schengen Project (operation, aesthetic & commercial improvement) Airport Service Quality target of the Corporate Scorecard 2016 was attained. Satisfaction rating of our passengers at 4.26 / 5 800 "i-mind" walkthroughs by AIA employees (corresponding to over 50,000 inspections) ISO9001 and ISO20000 certifications (IT&T Business Unit) retained 	<ul style="list-style-type: none"> Completion of Intra-Schengen Project Airport Service Quality / Passenger Satisfaction Surveys/ Quality Monitor Surveys Passenger Comments Management/ i-mind programme/ service measurements Air Smiles programme
Indirect Economic Impact	<ul style="list-style-type: none"> Athens Tourism Partnership Project in cooperation with Aegean Airlines, Marketing Greece & the Municipality of Athens AIA first airport in the world to implement a "bot" application through Facebook messenger Digital Gate programme for innovation (implementation of 2015 proof-of-concepts) Youth Employment Programme (Airport Praxis II), for 100 people aged 19 to 29 Internal Innovation Programme launch 	<ul style="list-style-type: none"> Destination Marketing activities Art & Culture programme Digital Gate Innovation programme 2017 Completion of Praxis II programme Internal Innovation workshops (Thinkathlons)
Responsible Procurement	<ul style="list-style-type: none"> Preparation of new Procurement Policy and related procedures, in line with international best practice 	<ul style="list-style-type: none"> Implementation of new Procurement Policy & Procedure as of Feb 2017
Energy	<ul style="list-style-type: none"> Energy management system targeting conservation and exploitation of renewable energy Preparations for ISO50000 certification (Energy Management) 	<ul style="list-style-type: none"> Activities leading to ISO 50000 certification, including new Energy Policy, Energy Management Team and related procedures and audits
Emissions & Climate Change	<ul style="list-style-type: none"> Climate Change Corporate Action Plan target of the Corporate Scorecard 2016 was attained. 42% carbon emissions reduction since 2005 Level 3+ Airport Carbon Accreditation upgrade ("neutrality") in December 2016 	<ul style="list-style-type: none"> Climate Change Corporate Action Plan 2017 Retain Level 3+ Airport Carbon Accreditation ISO 50001 certification (Energy Management)
Noise	<ul style="list-style-type: none"> Noise Abatement Procedures in collaboration with HCAA, the Ministry of Environment and the airlines Complaint management: 22 noise complaints received and handled in 2016 	<ul style="list-style-type: none"> Noise Abatement Procedures in collaboration with involved parties Complaint management
Occupational Health & safety	<ul style="list-style-type: none"> Significant improvement of Occupational Health & Safety indicators (vs. 2015) for Total Accidents (excluding to/from work accidents) and Accident Frequency Rate 	<ul style="list-style-type: none"> Health & Safety training / awareness sessions and Risk Assessments Fire Life Safety e-training
Community Engagement	<ul style="list-style-type: none"> Community Engagement target of the Corporate Scorecard 2016 was attained. Contribution to Prolepsis Institute (nutrition programme for neighbouring schools). 	<ul style="list-style-type: none"> Multidimensional Community Engagement Action Plan 2017

Environmental Management & Compliance

Environmental protection is a top priority for the AIA company. The company aims to responsibly and effectively monitor all environmental aspects related to the airports operations and to minimize or prevent, where possible, the airport's environmental impact. The corporate Environmental Policy focuses on the commitment to the continuous improvement of its environmental performance and initiatives to reduce emissions from airport operations, while maximizing energy efficiency in the infrastructure. Principles of sustainable development are incorporated in the company's corporate procedures.

Embedding environmental awareness amongst employees, members of the airport community and local municipalities is a key driver for the successful implementation of all company's action plans. Furthermore, sharing information at all levels with employees, business partners, state authorities and the public in general is strongly encouraged. The company regularly review and update its environmental objectives and targets while its performance and achievements are regularly disclosed to the public. During 2016 no legal action was taken against AIA nor was any fine or monetary sanction imposed related to environmental aspects. The company's efforts to effectively address all significant environmental challenges take place within the context of its Environmental Management System (EMS) which has been certified according to the international standard ISO 14001 since 2000. In 2016 the first annual assessment of AIA's Environmental Management System (EMS) was successfully conducted by an independent certification body. All contractual agreements with third parties operating at the airport entail environmental requirements. Additionally, environmental audits of third parties operating at the airport are conducted on a regular basis in order to assess compliance with the applicable national and European environmental legislation, Airport guidelines and regulations as well as their approved Environmental Management Plans.

The **energy** (electricity and natural gas) management is crucial for both aeronautical and non-aeronautical activities within the Airport community. Over the years, AIA has implemented a series of intensive energy-saving actions and projects without compromising the airport operations, promoting such efforts within the airport community and lessening impacts for all stakeholders, such as the local communities.

By year-end 2016, AIA’s Photovoltaic Park produced more than 13,280 MWh of clean energy, marginally lower than the previous year (-1.1%) attributed to the weather conditions. The energy produced during 2016 is equivalent to 12.8% of the airport’s total electricity consumption or 25.3% of AIA’s own electricity needs, compared to 13.4% and 26.5% in 2015, respectively.

Table 4. The AIAs Energy Consumption and Production (AIA Corporate Responsibility Report, 2016)

Electricity Consumption

	● 2016	● 2015	VAR %
Total Airport (MWh) (Refers to the entire airport community)	104,058.6	100,396.7	3.6%
AIA only (MWh) (Refers to the Company only)	52,582.7	50,665.1	3.8%
Total Airport consumption per passenger (KWh/PAX)	5.20	5.55	-6.3%

*based on pax numbers

Natural Gas Consumption

	● 2016	● 2015	VAR %
Total Airport (Nm³ x 1000) (Refers to the entire airport community)	2,143.5	2,199.0	-2.6%
AIA only (Nm³ x 1000) (Refers to the Company only)	1,096.1	1,147.0	-4.6%
Total Airport consumption per passenger (Nm³/PAX)	0.11	0.12	-9.1%

PV Plant Operation

	● 2016	● 2015	VAR %
Total Energy Production (MWh)	13,281.0	13,427.2	-1.1%
Total PVP CO₂ emissions savings equivalent (tonnes)	9,097.5	9,197.6	-1.1%

Air travel has a significant impact on the local and the global environment as well as to the quality of life of local citizens. Although the majority of **emissions** occur during flight, airports still have a role to play in addressing climate change. As a result, increasing demands have been placed on airlines but also on airports to report on these issues. In addition to measuring and managing greenhouse gas emissions under the company’s direct control, a commitment clearly stated in its Environmental Policy, the company also aims to influence its partners within the airport community to do the same.

Every year, a *Climate Change Corporate Action Plan (CCCAP)* is developed following an internal process of involving all AIA’s departments in developing measures to reduce carbon emissions and maximise energy efficiency. Some of the results of the 2016 CCCAP are:

- i) 50% reduction in the number of physical fax machines and their replacement with an e-fax application.
- ii) Centralised control of heating and cooling demand across the airport site.
- iii) Replacement of 14 vehicles from AIA's fleet, based on operational, financial and environmental criteria.
- iv) Achievement of a recycling rate of 58% (AIA's target for 2016: 60%).
- v) 15% reduction in the number of physical servers in AIA's Data Center with virtual ones.
- vi) Continued conversion of corporate paper-based forms to electronic format.

Furthermore, for the 8th consecutive year, the AIA continued to actively participate in the global initiative "Earth Hour" by shutting down one of the airport's two runways and reducing lighting in all buildings, staff parking areas and other airport areas for one hour (on March 19, 2016). These symbolic actions were also accompanied by informative public announcements.

AIA also participates in *Airport Carbon Accreditation* – a voluntary initiative launched by the European region of Airports Council International (ACI Europe), aimed at helping airports map and manage greenhouse gas emissions under their control which eventually evolved into a global programme following the induction of all other ACI regions. In the framework of its participation in Airport Carbon Accreditation, in 2010 AIA set a long-term goal to reduce CO₂ emissions under its direct control by 25% by 2020 using 2005 as a baseline year. To date, the AIA has achieved a 41% reduction in its carbon footprint between 2005 and 2016, which corresponds to a reduction of approximately 27,300 tonnes of CO₂. In 2016, AIA zeroed out its carbon emissions and thus became the 1st carbon neutral airport in Greece, the 25th in Europe and the 28th in the world. This was accomplished by purchasing Guarantees of Origin in the European market that ensure that all electricity consumed by AIA was produced by renewable energy sources and by purchasing verified carbon offsets for AIA's other remaining emissions (e.g. its vehicle fleet) that ensure that these emissions were neutralised by clean energy produced in other parts of the world. As a result, AIA was accredited in the last – and final – level of the programme, Neutrality.

EY comments on the Airport Carbon Accreditation stating that "*Following dedicated interviews with senior members of the Environmental Department, pertaining to AIA's*

decision to become a Carbon Neutral Airport, the first in Greece, we reviewed relevant evidence in order to understand the rationale, and substantiate the strategic nature behind this voluntary initiative. More specifically, we reviewed the suggested alternatives for offsetting AIA’s remaining carbon footprint and substantiated that the decision was based on strategic criteria, aligned to AIA’s Environmental Policy, made on the highest level within the organization. In addition, even though carbon neutrality is the final level of achievement, in the context of the Airport Carbon Accreditation programme, we observed evidence regarding AIA’s obligation and commitment to continue investing in carbon footprint reduction initiatives throughout the following years”.

Table 5. The AIAs 2016 Carbon Footprint (AIA Corporate Responsibility Report, 2016)

AIA's 2016 Carbon Footprint

		● 2016	CO ₂ EMISSIONS (TONNES)
Scope 1	Natural Gas	1,096,133 Nm ³	2,310
	Vehicle Fleet	93,996.9 lt of petrol	214
		399,056.4 lt of diesel	1,068
		4,285.7 lt of LPG	7
	Stationary Sources	12,365 lt of diesel	33
		23,899 lt of heating oil	60
Scope 1 Total			3,692
Scope 2	Grid Electricity	52,582,743.8 kWh	36,019
	Scope 2 Total (Location-based)		36,019
	Scope 2 Total (Market-based)		0.0
Total (Scope 1 and 2)		(*) equiv. to 59,919.59 MWh	39,711

Emission Factors used:

1. For all fuels except for heating oil: EFs from GHG protocol i.e.
• Motor Gasoline: 2.2717926 kg CO₂/lt • Gas/Diesel oil: 2.676492 kg CO₂/lt • LPG: 1.6117002 kg CO₂/lt
2. For heating oil: emission factor of 2.51973 kg CO₂/lt issued by the United Kingdom's Department for Environment, Food and Rural Affairs (DEFRA) found in documentation of the ClimateNeutral Company (<http://www.ukconversionfactorscarbonsmart.co.uk/>) since there is no EF for heating oil in the GHG
3. For natural gas: emission factor (55.67 tonnes CO₂/tJoule) for natural gas provided in the National Inventory for Greece (2016), p.110 (http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/8812.php) - Methodology suggested by external verifier
4. For electricity: emission factor (0.6850 kg CO₂/kWh) for grid electricity (GHG protocol, 2015) for the location-based method

Air quality is significantly affected by the airports’ functions. In addition to CO₂, aircraft engines, ground handling equipment and other aviation sources emit pollutants that can negatively impact local air quality at and around the airport. The International Civil Aviation Organization (ICAO) sets international standards for aircraft engine emissions.

AIA continuously monitors air quality and meteorological conditions both within the airport perimeter and in the adjacent communities. In addition, emissions of air pollutants from all relevant airport sources are assessed while measures are taken to reduce these emissions where possible.

AIA’s monitoring equipment includes an Air Quality Monitoring Network (AQMN), a Differential Optical Absorption Spectroscopy system (DOAS), a SONic Detection and Ranging system (SODAR), a Radio Acoustic Sounding System (RASS) and a Meteorological Station. The AQMN, which consists of five permanent monitoring stations installed in the neighbouring areas of Glyka Nera, Koropi, Markopoulo, Pallini and Spata and one mobile station, has been in operation since 1998, well before the airport commenced operations in 2001. Ground-level concentrations of the major pollutants (NO_x, O₃, PM₁₀, PM_{2.5}, SO₂, CO and HCs), as well as basic meteorological parameters (wind speed and direction, temperature, relative humidity, precipitation, total solar radiation and atmospheric pressure), are measured.

Table 6. The AIAs Mean Concentrations of Monitored Pollutants at the AQMN Stations (AIA Corporate Responsibility Report, 2016)

Mean Concentrations of Monitored Pollutants at the AQMN Stations

	NO ₂ (µg/m ³)		O ₃ (µg/m ³)		PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)		SO ₂ (µg/m ³)		CO (mg/m ³)		HCs (ppm)	
	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015
Glyka Nera	15.2	17.3	83.1	87.0	28.1	27.2	N/M	N/M	7.1	6.7	0.3	0.3	N/M	N/M
Koropi	11.4	13.4	79.8	79.2	N/M	N/M	22.0	22.0	N/M	N/M	N/M	N/M	2.3	1.9
Markopoulo	15.6	14.0	78.5	79.9	35.2	39.8	N/M	N/M	N/M	N/M	0.3	0.3	N/M	N/M
Pallini	10.4	11.6	87.6	85.5	N/M	N/M	13.1	14.3	5.7	5.4	0.2	0.3	N/M	N/M
Spata	16.1	17.2	75.1	79.3	30.9	28.7	N/M	N/M	4.6	4.3	0.3	0.3	2.4	2.2

AQMN: Air Quality Monitoring Network
Mean concentrations are calculated through MIS

Aircraft noise is one of the main environmental challenges associated with airport operations. AIA recognises **Noise** as a material issue given that it has an effect on the quality of life of neighbouring communities. The Airport Company addresses noise issues responsibly by taking measures aiming at reducing annoyance to our neighbors. As such, Noise Abatement Procedures have been in place since the airport opened and are implemented in collaboration with the Hellenic Civil Aviation Authority (HCAA) and airlines in order to reduce noise levels in the residential areas in the vicinity of the airport and underneath flight paths. AIA has installed a NOise MONitoring System (NOMOS) consisting of 1 mobile and 10 permanent Noise Monitoring Terminals (NMTs) which provide a detailed profile of aircraft noise in the residential areas near flight paths. This system is connected with HCAA’s radar so that correlations can be made based on actual flight track information. The International Civil Aviation

Organisation (ICAO) is also responsible for adopting increasingly stringent noise standards for aircrafts.

Table 7. The AIAs Average Noise per Noise Monitoring Terminal (NMT) (AIA Corporate Responsibility Report, 2016)

Average Noise Level per Noise Monitoring Terminal (NMT)

NMT	● 2016		● 2015	
	L _{den} dB(A)	L _{night} dB(A)	L _{den} dB(A)	L _{night} dB(A)
2	39.9	26.6	38.4	18.5
3	60.4	44.5	59.6	43.1
4	60.1	51.5	60.9	52.3
5	54.3	38.2	53.8	36.7
6	51.2	37.5	51.4	39.7
7	53.3	45.7	52.5	45.0
8	47.8	37.1	50.4	37.2
9	54.9	41.3	55.3	41.6
10	33.1	19.7	32.3	15.7

Legend: L_{den} and L_{night} are calculated as defined in Government Decision 13586/724 (GGG 384B, 28/3/2006). Noise levels are measured in dB(A), a unit that denote the human ear's response to sound. As of 2015, the data presented refers to noise levels generated from a/c flights only, as required by the relevant new JMD (JMD 210474/2012), whereas in former years the total noise level was presented.

AIA systematically monitors **water** consumption (potable and irrigation), as well as the quality of surface and ground water. Possible leaks of the water supply network are promptly detected and addressed. AIA applies a number of water-saving measures, such as the use of treated wastewater from our own Sewage Treatment Plant (STP) for irrigation of non-public green areas at the airport. An Industrial Wastewater Treatment Facility (IWTF) operating on site receives wastewater primarily from the aircraft maintenance activities but also from other sources (wastewater from runway derubberisation, oil/water separators, etc). In order to raise awareness, AIA encourages all airport users to limit their water consumption when using restrooms and kitchen facilities.

The quality of surface water is monitored regularly through ad hoc sampling and analyses following rain events as well as on a continuous basis by an Online Water Monitoring System (OWMS) installed prior to the airport's main off-site discharging point. Possible hydrocarbon spillages are immediately managed using bioremediating substances and appropriate sweeping vehicles. An approved Spillage Response Plan is in place and is implemented each time a spillage occurs.

Table 8. The AIAs Water Consumption & Wastewater Treatment (AIA Corporate Responsibility Report, 2016)

Water Consumption

	● 2016	● 2015	VAR %
Total Airport (m ³ x 1000) (Refers to the entire airport community)	602	604	-0.3%
AIA only (m ³ x 1000) (Refers to the Company only)	398	408	-100.0%
Total Airport consumption per passenger (m ³ /PAX)	0.030	0.033	-9.1%

*based on pax numbers

Wastewater Treatment (Refers to the entire airport community)

	● 2016	● 2015	VAR %
Processed through Sewage Treatment Plant (m ³ x 1000)	352	341	3.2%
Processed through Industrial Water Treatment Facility (m ³ x 1000)	1.7	2.3	-26.1%

Refers to AIA & Airport community. The treated effluent from the Airport's STP, which treats all sewage generated onsite, is used exclusively to irrigate non-public green areas at the Airport.

Note: All industrial wastewater produced at the airport is treated on site at the Industrial Wastewater Treatment Facility (IWTF)

AIA has developed a comprehensive **waste management** system based on “The Polluter Pays” principle that promotes separation at source and recycling. Solid Non-Hazardous Waste, Hazardous Waste and Medical/Clinical Waste are the major types of waste generated at the airport. In 2016 the amount of food waste from international flights was 1,589 tonnes. Since 2005 the company has established cooperation with Alternative Management Systems for the final disposal of hazardous waste, which received 25% of the hazardous waste produced onsite in 2016, while the remaining 75% was transferred to other licensed management facilities. AIA’s commitment to recycling is complemented by the use of recycled materials for daily administrative tasks (e.g. recycled paper for stationery use and corporate correspondence). In parallel, various corporate tasks (contract review, expense claims, annual leave forms, etc.) are administered electronically. The company’s efforts to encourage airport employees to recycle resulted to the collection of approximately 10.7 tonnes of recyclable materials at the company’s Recycling Centre in 2016. Furthermore, AIA encourages its partners to develop similar environmentally-friendly business practices.

Table 9. The AIAs Hazardous and Non-Hazardous Waste (AIA Corporate Responsibility Report, 2016)

Hazardous Waste Processing 2016

	● 2016	● 2015
Managed by Alternative Management Practices	25%	32%
Transferred to Licensed Management Facilities	75%	68%

Breakdown of Solid Non-Hazardous Waste 2016

TONNES	● 2016	● 2015
Municipal Waste	5,691	5,344
Recyclables	7,761	5,737
Special Waste	9	0
Total	13,461	11,081

AIA has a biomonitoring programme, based on international best practices, in the vicinity of the airport, trying to protect the region’s biodiversity. In the context of the 2016 ECOPOLIS Environmental Awareness Awards, AIA received an award for its monitoring ecosystems work, in the area of the airport, the protection of the biodiversity and wildlife management. Also, in partnership with the Hellenic Ornithological Society, AIA protects and promotes the Vravra Wetland, a local site of unique ecological and archaeological value included in Natura 2000 European network of protected areas, identified as a Site of Community Importance (SCI). In 2016, actions like the clean-up of the wetland, maintenance of the existing footpaths, signage, vegetation, and fencing, monitoring of bird populations in the wetland and other, were implemented.



Figure 6. Vravrona Wetland (AIA Corporate Responsibility Report, 2016)

According to Mr. Papademetriou P. (Corporate Quality Manager at AIA), the benefits for the company are shown in long-term. The main benefit is internal, for the

corporation to understand its impacts in the society and the environment. Stakeholders and most crucially employees can be informed and understand these impacts, and this drives to the employee engagement and trust to the company.

Results

Many companies around the Globe have realized the urgent need for active contribution in reducing inequalities, minimizing the impacts of their activities on the environment and building a sustainable future. The implementation of the ten UNGC principles regarding Human Rights, Labour, Environment and Anti-corruption, along with initiatives and voluntary actions from governments, corporations and citizens can help achieve these goals. Also, a more specific and binding legislative context is required.

Corporate Social Responsibility and Corporate Sustainability Reporting are directly related to each other. Having examined the CSR we conclude that many tools and incentives are given to corporations in order to commit with the UNGC principles and produce a beneficial outcome for the environment and the society. The stakeholder's opinion is seriously taken into account and is the strongest incentive for a corporation to commit with the UNGC principles, take actions and produce Corporate Sustainability Reports. The Corporate Sustainability Reporting is a valuable tool for the companies and not a burden.

The EU legislation exempts small-medium companies from the obligation of non-financial reporting. The result of this exemption is that the most small-medium companies do not take or take at small-scale actions about the environment and the society. Small-medium enterprises occupy a great number of employees worldwide, have sometimes serious impacts on the environment and produces a significant number of corruption cases. Thus, it is recommended, for further investigation, the assessment of the environmental and social impact of the small-medium companies. The possibility of integrating small-medium companies into the Sustainability commitment process must also be examined. Finally, the evaluation of the importance of the non-financial reporting application from such companies, especially for countries like Greece, is highly recommended.

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