

# The limits of environmental accounting disclosure: enforcement of regulations, standards and interpretative strategies

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## Abstract

**Purpose** – The objective of this study is to provide insights into insiders' perspectives on environmental accounting disclosures, which is relatively under-investigated. Based on insights from key managers, we provide information on company decisions and practices related to the data disclosed in annual reports. More specifically, we explore how regulation guidance affects and shapes disclosure strategies.

**Design/methodology/approach** – Drawing on the normativity framework, our research design involves a multiple-case study focusing on eight French listed firms in sensitive industries. We primarily build our investigation on the analysis of annual reports. Semi-structured interviews with 20 key managers belonging to these same firms provide interpretative explanations of the disclosed (and un-disclosed) figures.

**Findings** – Our main findings show that the disclosure of environmental accounting information (EAI) is still in its infancy. Weak definitions and poor guidance in regulations explain the limitations in disclosure and induce interpretative strategies depending on the type of data to be disclosed in the companies' annual reports. We document that separate logics drive environmental expenditure and environmental liability disclosures in many respects.

**Practical implications** – This study should be useful for regulators because environmental accounting standards are currently subject to change and helpful for users because of the careful consideration of disclosures.

**Originality/value** – Our research is timely and adds to the growing body of research on regulation. We document how a common regulation may lead to interpretative strategies by different actors and networks of actors, thereby contributing to shaping EAI norms.

**Keywords** Environmental accounting information, Case study, Normativity, Grenelle 2 law, Disclosure strategies

**Paper type** Case study

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## 1. Introduction

In the field of Corporate Social Responsibility (CSR) reporting, the disclosure of environmental accounting information (EAI) is a growing concern (Bebbington *et al.*, 2012; Chen *et al.*, 2014; Cho *et al.*, 2012; Laine *et al.*, 2017). EAI refers to environmental expenditures (EEs) devoted to the preservation of the environment, including environmental expenses and investments, environmental liabilities (ELs) included in the balance sheet, income statements and notes added to financial statements or disclosed in annual reports. Interest in this information is justified by its specific nature as both accounting and environmental information (see Unerman *et al.*, 2018) and its potential informative content (Clarkson *et al.*, 2004; Gao, 2011; Johnston, 2005) and falls within the scope of the directive 2014/95/EU that fosters environmental reporting requirements to improve disclosure practices. However, to date, several authors have indicated that EAI tends to be rather limited and variable (Cho and Patten, 2008; Criado-Jiménez *et al.*, 2008; Larrinaga *et al.*, 2002; Llana *et al.*, 2007) and concerns regarding the production of these figures remain high and largely unexplored. To fill this gap, Chen *et al.* (2014; see also Cho *et al.*, 2012) have called for further direct evidence of how these environmental figures are constructed inside organizations. This process is considered a “black box” and developing a greater understanding will require qualitative explorations that are particularly relevant to environmentally sensitive industries.

Our study builds upon and complements other studies conducted in Europe in a regulated context (e.g. Bebbington *et al.*, 2012; Larrinaga *et al.*, 2002). Prior evidence suggests that regulatory requirements do not always lead to rapid improvements in environmental reporting. For instance, the French government regularly evaluates applications of the Grenelle 2 Law by listed companies (e.g. Chelli *et al.*, 2016). Bebbington *et al.* (2012) indicated that strict compliance with the law develops gradually over a long time horizon and disclosure practices change along the life cycle of norms (Larrinaga *et al.*, 2018). Regulation has different degrees of normativity, defined such as the process through which actors consider the rules to be binding and linked to the socio-political context in which they evolve (Bebbington *et al.*, 2012; Botzem and Quack, 2006; Djelic and Sahlin-Andersson, 2006). Some firms deliberately react to and shape the regulation (Chauvey *et al.*, 2015; Criado-Jiménez *et al.*, 2008; Depoers and Jérôme, 2017) and comply with a set of relevant rules in their reports. Formal legislation must be perceived by organizations as appropriate and legitimate in order to match with environmental disclosure practices (Bebbington *et al.*, 2012).

In light of this, the aim of our study is to provide a better understanding of the decisions and practices of top management from a normativity theory perspective. More specifically, we address the question of the preliminary step of the disclosure (or the absence of disclosure) by examining how key managers must organize together to comply with various regulations applied to the organization and make disclosure choices. EAI disclosures are among the outputs of this interplay. The French regulatory context during the last 15 years offers an ideal opportunity for an in-depth study that focuses on production difficulties and issues surrounding this information, thereby filling the associated literature gap (Chauvey *et al.*, 2015; Depoers and Jérôme, 2017). Since the New Regulation in Economics Law (law 2001–420 of May 15, 2001) and later the Grenelle 2 Law (law 2010–788 of July 12, 2010), French firms are required to provide environmental disclosures in their annual reports, with environmental accounting figures only required for companies listed in a regulated market. Furthermore, since 2005, listed groups have to comply with International Financial Reporting Standards (IFRS) and the accounting treatment for environmental liability is specifically identified in these accounting guidelines. As such, the regulation regime consists of a set of multiple sources (Fallan, 2016). We consider both of these regulations and general laws, accounting standards and soft laws. Additionally, in France, it is mandatory for listed companies to have their environmental information assured by a third external and independent party approved by the French Accreditation Committee (COFRAC), thus making the case of France unique.

This study is based on a multiple-case study (Ahrens and Chapman, 2006; Yin, 2013) focusing on eight French listed firms operating in environmentally sensitive sectors. Our investigation is primarily based on the analysis of firms' annual reports. Starting from EAI that is (or is not) disclosed according to regulatory requirements, semi-structured interviews with 20 key managers involved in sustainability and accounting offices (sustainability directors, accounting directors and environmental and statutory auditors) were conducted. This method helps us to triangulate the EAI-related explanations of actors within the same company. We also consider auditors' narratives to shed light on some additional aspects of our inquiry.

Our main findings show that, even in a regulated context, the disclosure of EAI is unsatisfactory for insiders of organizations. Actors face weak definitions in regulation and the absence of accounting guidance, which is likely to impact whether a company chooses to disclose EAI. Additionally, environmental accounting items fall between two scopes of competencies and concerned actors. On the one hand, EEs are perceived to be highly arbitrary among the studied organizations given the weakness of the institutional frame on which the data are grounded. On the other hand, ELs are obscured by the major methodological issues surrounding their publication despite being perceived as more informative than EEs. Backed by financial accounting, EAI creates a new scope that includes both accounting directors and directors of sustainable development, thus creating new links; however, in organizations, these actors have no direct hierarchical link. Overall, our results show that the disclosure of EAI is still in its infancy. Therefore, this investigation extends the empirical literature on both environmental reporting and accounting reporting in different ways.

First, we examine an under-investigated area: the context of the choice to disclose environmental accounting figures and the difficulties experienced by organizations when elaborating on these figures (Bebbington *et al.*, 2012; Laine *et al.*, 2017). The multiple case studies approach helps to identify shared perceptions of a variety of actors beyond the specific setting of each company, thus adding to the body of qualitative studies. Second, our study reveals the confusion surrounding concepts and measures of EE and EL, which is driven by weak definitions and gaps between government regulation and accounting standards. These findings could provide information for external users on how they should read the disclosed environmental accounting figures. In this way, we contribute to prior quantitative research that has often considered environmental data to be more trustworthy than other types of disclosure (Al-Tuwaijri *et al.*, 2004). As a further contribution, this investigation also points towards the emerging role of auditors and the formation of clusters of agents concerning the fabric of EAI. We believe that our research is timely and adds to the growing body of research on regulation (Chelli *et al.*, 2016). Finally, this study also has practical implications for regulators because accounting standards for environmental information are currently evolving. Our study also opens up a new avenue for research into the fact that generally accepted accounting principle (GAAP) EAI is not managed in the same way as non-GAAP EAI for the same company.

The remainder of this paper is organized as follows. Section 2 introduces the background of the study. Section 3 presents the French context and setting of the study in more detail. Section 4 describes the method of research. Section 5 presents the empirical findings, which are illustrated with direct quotations. Section 6 discusses the main results, concludes and presents areas for future research.

## 2. Theoretical framing

This section outlines previous research and provides a theoretical framework to investigate the decision to disclose and estimate EAI with regards to existing regulation. We mobilize the concept of normativity to theoretically frame the empirical analysis as it privileges the study of the dynamics through which actors come to see rules as binding in the regulatory arena (Bebbington *et al.*, 2012).

### 2.1 Environmental accounting information disclosure

Many previous studies based on quantitative research approaches have used disclosed EAI data as a proxy of a company's efforts to manage environmental stakes and risks (Berthelot *et al.*, 2003; Maurice, 2012; Patten, 2005; Schneider *et al.*, 2017). Further, prior research shows that these accounting figures appear to be value-relevant for different stakeholders (Clarkson *et al.*, 2004; Gao, 2011; Johnston, 2005). However, some works have documented a great diversity in disclosure practices (Cho and Patten, 2008; Criado-Jiménez *et al.*, 2008; Larrinaga *et al.*, 2002; Llena *et al.*, 2007). To illustrate, in his investigation of EAI, Patten (2005) reports that strategic behaviours by a firm's executives affect information projections and their accuracy if compared to information realized ex post. The author shows that companies appear to use the disclosure of projections of future capital spending for environmental control projects as a legitimating device. In addition, Cho and Patten (2008) show that in contrast to all other environmental accounting figures, the number of companies disclosing an environmental liability amount has increased over the years. In their investigation, Chen *et al.* (2014) attribute this increase in environmental liability amounts to the desire to avoid overstated liability assessments by potential stakeholders; that is, these increases are used as a tool of impression management. Focusing on EAI disclosures by listed companies, Senn (2018) shows a slight increase in liabilities disclosures and a slight decrease in expenditures disclosures, with more explanations given by firms in cases of non-disclosure. Our investigation is thus motivated by the views that "*quantitative data are not always gathered systematically and reported completely*" (Dingwerth and Eichinger, 2010, p. 88). The decision to disclose EAI and an elaboration of the process in the organizational setting have been overlooked in the literature. This situation is mainly attributable to the decision to use a binary variable or disclosure score across a list of items and the difficulty of accessing key actors in top management teams. The topic of environmental accounting figures is interesting because their calculation requires skills and knowledge that companies do not always have (Maurice, 2012). To our knowledge, few studies have investigated EAI production in different institutional settings (including enforcement) (Bebbington *et al.*, 2012; Laine *et al.*, 2017). According to those authors, EAI is ambiguous and difficult to calculate. These prior findings indicate the need for further examinations of the conditions of EAI production and disclosure.

### 2.2 Insider's perspective on normativity

The problem of the greater or lesser compliance of practices associated with the regulations in force has been the subject of empirical research in the field of environmental accounting (e.g. Larrinaga *et al.*, 2002; Bebbington *et al.*, 2012; Chauvey *et al.*, 2015; Chelli *et al.*, 2014; Depoers and Jérôme, 2017; Mobus, 2005). Notwithstanding the existing regulations, annual reports of companies do not show radical changes in environmental disclosure practices from one year to another (Peters and Romi, 2013). For Bebbington *et al.* (2012), the normativity, that is the degree to which actors understand rules as binding, is not necessarily mandated and enforced by law. Indeed, soft-law systems (non-binding forces) are also capable of achieving this purpose (Mörth, 2004). Organizations interact with state and non-state actors, such as NGOs or other organizations. In this context, compliance is not only a question of constructing new rules, accounting practices need to be pushed and pulled by various actors in order to diffuse and become quasi de facto "binding" norms over time (Brunnee and Toope, 1997; Finnemore and Sikkink, 1998). The accounting literature emphasizes this trend for new systems of governance and accountability (e.g. Maroun and van Zijl, 2016; Tremblay and Gendron, 2011). In the case of sustainability assurance, Larrinaga *et al.* (2018) show a significant association between certification bodies and consulting and engineering firms with the convergence of sustainability assurance practice into norms.

The notion of the life-cycle of norms has been introduced to understand that normativity is not static but changes along a three-stage process that starts “with the emergence of norms, characterised by the innovation of norm entrepreneurs, followed by diffusion leading to a “tipping point” after which the norm cascades to reach a point at the end of the life cycle where norms are internalized and acquire a taken-for-granted quality” (Bebbington *et al.*, 2012, p. 79). In the earlier stages of the life cycle of norms, actors innovate, translate and propose specific practices (Scott, 2008). Previous research has illustrated this process for integrated reporting (e.g. Higgins *et al.*, 2014; Stubbs and Higgins, 2014; de Villiers *et al.*, 2014) and accounting for biodiversity (e.g. Adler *et al.*, 2018; Gray and Milne, 2018; Russell *et al.*, 2017) that constitute the latest developments in environmental reporting innovation. These innovations include how actors choose which strategies to pursue; that is, how relatively abstract ideas or systems are transformed and diversified when they are translated in particular settings (Botzem and Dobusch, 2012). The effects of regulations are thus linked to networks of actors (mainly non-state actors) within which those regulations act, and these networks further contribute to shaping regulations. State actors play a key role in formalizing and stabilizing regulations (Botzem and Hofmann, 2010). Once the “tipping-point” is attained, non-disclosers feel pressure to comply and informal reporting practices rapidly cascade to converge towards patterned practices (Djelic and Quack, 2008). Thus, a significant time between the emergence and the diffusion of norms is possible (Bozanic *et al.*, 2012). The crucial change is that practice depends on the enforcement and/or legitimacy of the norm itself (Bebbington *et al.*, 2012). In this regard, the well-diffused nature of the GRI guidelines is one example because it shows the key role played by institutional entrepreneurs in the legitimacy of environmental reporting among organizations (Etzion and Ferraro, 2010; Levy *et al.*, 2010).

Regulation is a key field of action for organizations; however, we know little about how rules are socially constructed by actors and translated inside organizations. Previous empirical research on EAI disclosure, either inside or outside of France, has shown low levels of disclosure, suggesting that such disclosure is at its earlier stages of development. Therefore, it is important to observe the extent to which the institutional context (the standards and regulation regime) is influential and to examine how it affects the behaviour of organizations (Guerreiro *et al.*, 2012). The French setting offers a rich opportunity for an in-depth study. We examine normativity from the perspective of firms’ internal practices, which enables a closer look at the type of rules to which actors conform (Chelli *et al.*, 2016).

### 3. The French setting

French national regulatory bodies have been proactive in environmental reporting requirements for several years. Two levels of relevant regulation have to be distinguished here because they directly impact our object of study. The first level stems from national laws (government regulation) requiring environmental disclosures and procedures to which listed companies are supposed to comply; the second level stems from accounting rules that those listed companies use to disclose EAI.

Promulgated in 2001, NRE law, in its Article 116, required listed companies to provide information on the methods used to account for the social and environmental consequences of its activity. In Decree N°2002–221 of 20 February 2002, companies were specifically required to disclose the “*expenditures incurred to prevent the impact of the firm’s activities on the environment*” and the “*amount of provisions and indemnities for environmental risks, unless this information could cause serious prejudice to the firm in a litigation currently in process*”. As expected, given the nature of the text, the law did not provide any technical specifications concerning reporting obligations. Rather, it is a “disclosure framework” without a regulated content (Depoers and Jérôme, 2017).

Following this NRE Law, the French accounting standard setter issued a recommendation (CNC Recommendation, 2003-R02 of 21 October 2003) in which EEs are “*incurred to prevent, reduce or remediate damage to the environment the firm has caused or could cause through its business activities*”. Furthermore, since 2005, the same French companies have been required to comply with IFRS, where only the accounting treatment of environmental liabilities is specifically identified. Specifically, IAS 37 and IAS 16 establish appropriate accounting treatment. According to IAS 37, a liability is recognised as a provision if (1) an entity has a present obligation (legal or constructive) as a result of a past event; (2) an outflow of resources is probable; and (3) the amount concerned can be reliably estimated. IAS 16 provides more details on the capitalization of expenditures.

Importantly in this study, further developments after 2005 are related to a second general law introduced in 2012 – namely Grenelle 2 Law (according to its Decree no 2012–557 of April 24) and not from the issuance of new accounting rules. This law has made subtle changes with regard to EAI. Concerning ELs, modifications have not been made and the new law adopted the same initial disclosure requirement. Accordingly, listed firms should still comply with IAS 37 in the same way as before the issuance of Grenelle 2. In contrast, the “*environmental expenditures*” item has been re-defined as “*resources devoted to prevention of risk and pollution,*” but without a detailed definition of or guidance on the content of this information or the scope of reporting. EEs are thus no longer required as such [1]. In this context, it is important to note that both the NRE and Grenelle 2 Law lack both sanctions for non-compliance and incentive mechanisms to disclose information. Instead, the Grenelle 2 Law introduced a “*comply or explain*” principle (article R. 225–105-1). Firms may thus comply or give reasons for not disclosing any information. Additionally, it became mandatory to have the disclosed data audited by an independent third party accredited by COFRAC. To date, statutory auditors have become the primary providers of environmental assurance and consequently a trusted third party in the field of environmental information (Decree of 27/12/2013 of the High Council of Auditors); as such, they can perform the role previously played by independent third parties at the request of the entity. Since this new regulation, the practice of this auditing has been changed in French groups. Before the Grenelle 2 Law, environmental data were part of the annual report and, as such, were signed by the two statutory auditors [2]. Since the issuance of the decree, these data are separate and social and environmental data are only signed by the COFRAC auditor, which means different levels of diligence from the assurer. According to the professional standard (NEP 9090), the mission of the COFRAC auditor is “*separate from the statutory audit mission*”. In addition, “*when the entity has designated several auditors, the mission (of CSR assurance) may be requested from a single auditor [...]*”. Within the 42 items requested by the decree of Grenelle 2 Law, the COFRAC must assure “*the amount of provisions and guarantees for environmental risks*” and “*resources devoted to the prevention of environmental risks and pollution*”.

Along with commercial laws and accounting standards, other regulatory bodies have developed their own reporting guidelines to drive companies’ disclosures. For instance, the National Institute of Statistics and Economic Studies (INSEE) [3] perform an annual survey on environmental investments (Antipol), which are defined as follows:

Expenditures analysed here correspond to pollution control investments of the companies, to their studies to pollution control investments and to studies designed to assess the impact of their activities on the environment. They do not include their current expenditures related to environmental protection, such as royalty payments, recovery levies and taxes and waste treatment. (INSEE, 2015)

This survey is mandatory for French firms, and it analyses EEs at the country level:

In the manufacturing industry, cumulative environmental expenditures over the 2002–2013 period exceed 10 billion euros. Naturally, they are higher for the activities most likely to have an impact on the environment. (INSEE, 2015)

Providing another guideline, the *Global Reporting Initiative* GRI4 framework (2013) requires the disclosure of “*Total environmental protection expenditures and investments by type*”. This set of definitions and guidelines for estimating the amount of EEs has led to the formation of soft-law regulation, which leaves space for a company to determine how to comply on a voluntary basis. Overall, French listed firms are subject to a set of hard and soft regulations concerning EAI (see [Table 1](#)). This situation gives managers considerable leeway and space regarding the content of EAI to disclose. Our study provides further insights on how key actors interpret and apply regulations and thereby shape EAI disclosure as displayed in annual reports.

#### 4. Qualitative case study method

This section introduces our method, sample and data. The empirical study is based on fieldwork shaped by a case study approach that relies on complementary information sources: (1) a pre-analysis and review of annual reports and (2) interviews with top managers ([Ahrens and Chapman, 2006](#); [Yin, 2013](#)). Case studies are useful to develop a better understanding of organizational practices and to “*obtain an interpretation of what happens more directly and to be able to gain insights into all the relevant aspects of the phenomenon under study*” ([Hågg and Hedlund, 1979](#)). We proceeded with our investigation according to a review of annual reports set up in advance. Top managers have been interviewed with consideration of the disclosure of the company. Accordingly, the annual report review and interviews of top management constitute different sources of the same case study.

##### 4.1 Sampling and data collection

The field setting encompasses large corporations that were disclosing environmental information for several years before the new regulation of the Grenelle 2 Law. The selection of the cases followed a two-step strategy. First, our initial sample consists of French firms that were listed on the SBF 120 index continuously over the period 2009–2015 and for which the annual reports were available. We then draw upon the literature to identify relevant industries for a study of EAI disclosure; that is, industries that are environmentally sensitive and involved in manufacturing (e.g. [Cho et al., 2012](#)). The companies included in this sample were selected according to the importance of the amounts disclosed, but we also tried to diversify the industries. We then adopted a theoretical sampling strategy ([Yin, 2013](#)) to balance both similarity and variety, allowing cross-comparison analysis and additional study findings. A total of eight listed groups have been studied. Although included in our prior sample, a ninth firm has been abandoned because one of the key actors declined to be interviewed.

In a first step, we have gathered the annual reports from the AMF [\[4\]](#) database for the period 2009–2015. For each group, we have collected EE and EL amounts; however, additional disclosures and explanations about those EAI are very poor. [Table 2](#) displays the proportion of these EAI amounts in relation to the total turnover and assets. [Yin \(2013\)](#) highlights the importance of both similarity and variety in theoretical sampling to achieve theoretical representativeness. Our sample focuses on industrial companies disclosing environmental information but not specifically EAI. However, despite these commonalities, firms belong to different environmentally sensitive sectors. Additionally, firms do not disclose the same type of EAI. Only three groups disclose EEs, whereas seven disclose ELs. This situation was not surprising given that providing an amount for EEs is no longer

Timeline/ regulation	General laws and related decrees	European requirements	Accounting guidance	Other initiatives
1996				INSEE survey about environmental expenditures (every three years) and investments (annually) to protect the environment. Expenditures “correspond to pollution control investments of the companies, to their studies to pollution control investments and to studies designed to assess the impact of their activities on the environment”
2001	NRE Law (2001–420, Article 116) 1. Disclosure of “environmental expenditures” 2. Disclosure of “environmental liabilities”	European Commission recommendation (2001/453/CE) related to environmental aspects in the annual accounts and reports of companies		
2002	NRE Law enforcement (Decree No 2002–221) 1. No sanction if not compliant 2. Lack of control systems			
2003		European directive 2003/51/EC known as “accounting modernization” adding the obligation to include information on environmental issues in the annual and consolidated accounts of companies	French Accounting Standards (CNC Recommendation, 2003-R02) in which environmental expenditures are “incurred to prevent, reduce or remediate damage to the environment the firm has caused or could cause through its business activities”	
2005			IFRS where only the accounting treatment of environmental liabilities is specifically identified (IAS 37, IAS 16)	

**Table 1.**  
Regulations regarding  
environmental  
accounting figures

(continued)



Timeline/ regulation	General laws and related decrees	European requirements	Accounting guidance	Other initiatives
2010	Grenelle 2 Law (2010-788 Article 225) 1. The terminology “ <i>expenditures</i> ” has been replaced by “ <i>resources devoted to prevention of environmental risks and pollution</i> ”			
2012	Grenelle 2 Law enforcement (Decree No 2012-557) 1. Comply or explain principle introduced (Article R. 225-105-1) 2. Mandatory assurance of environmental data by independent third party accredited by the COFRAC 3. No sanction if not compliant		Greenhouse Gas Emissions (ANC Regulation No 2012-03)	
2013				GRI (G4) encourages the disclosure of 79 indicators including “ <i>environmental expenditures and investments by type</i> ” (indicator EN31)
2014		European Union (EU) directive 2014/95/EU as regards “disclosure of non-financial information” (article L. 225-102-1)		
2017		Transposition of European directives into French national law Grenelle 2 (Decree no 2017-1265)		

Table 1.

required by law. A first step was to manually identify and collect the nature of the environmental accounting figures disclosed in the annual reports. For each observation, we identified the statements relative to specific environmental accounting figures. Then, we directly contacted the director of sustainable development inside the organization. The matter was then passed on to other actors potentially linked to the information production process within the same firm, namely, accounting directors. The selection process of actors was based on the snowball sampling method; that is, by identifying potential and

**Table 2.**  
Sampling

Conditions	Our sample
Theoretical representativeness	8 large companies (1) Disclosing environmental information (2) Evolving in environmentally sensitive industries (3) Subject to the concerned regulations since their introduction (4) Homogeneous sample in terms of regulation
Data	Complementary information sources (1) Annual reports (8) (2) Interviews (20) Data access (1) Interviewees volunteered (2) Confidentiality of interviews (3) Variety of managers interviewed (4) Interviewees with strong responsibilities
Potential learning	8 cases (1) Little attention has been paid to the manager's decision-making setting (Cho <i>et al.</i> , 2012; see also Chen <i>et al.</i> , 2014) (2) Practical implications for regulators

hard-to-reach actors “*through referrals made among people who share or know of others who possess some characteristics that are of research interest*” (Biernacki and Waldorf, 1981, p. 141).

Access to interviewees inside selected companies was granted on the agreement that *verbatim* quotations and findings would be published anonymously. Therefore, detailed information on corporate operations cannot be provided. Given the high turnover in the selected positions (sustainability director, accounting or corporate reporting director, auditors) and to obtain a fairly homogeneous narrative, we focused on the firm's most recent financial statement at the time of the interviews. The eight cases were assessed until data saturation was achieved (Einsenhardt, 1989), and they provide enough similarity and variety to theoretically support or extend our emerging findings.

#### 4.2 Description of cases

The eight case studies are top-listed companies. Although in different industries, they are all in environmentally sensitive industries. To triangulate prior analyses of EAI in their annual reports, our second source of data is composed of 20 in-depth interviews, with 15 interviewees belonging to the 8 companies and 5 belonging to external auditors (statutory or COFRAC). Table 3 presents the main characteristics of the cases and the duration of the interviews.

All interviewees have strong responsibilities related to the parent company of their firm, thus ensuring a high level of decision-making power. The auditors of the firms were also contacted and interviewed due to their major involvement in the disclosure of environmental information (Campbell *et al.*, 2003; Power, 1991; Schneider, 2011). The number of interviewees stems from empirical saturation, which meant that “*no new information was obtained*” (Morse, 1995) on our research question. All interviews were conducted using a semi-structured interview guideline. The interview guide supplied in Appendix 1 is divided into four topics (definitions, reporting process, actors and disclosure policy), and questions were added to explore target users and auditor relations. Additional questions about the EAI audit process were added for auditors. Interviews and analyses were conducted in French. Selected information was then translated for the production of this paper.

Group	Environmental accounting information	Number of interviews	Interviewee profile	Interview duration
Group A	Environmental expenditures Environmental liabilities	3	Director of Sustainable Development (DD1)	1 h 05 min
			Auditor – expert in EAI (CAC1)	45 min
			Auditor–expert in EAI (CAC2)	44 min
Group B	Environmental expenditures Environmental liabilities	2	Environmental Strategy Director (DD5)	59 min
			Accounting Standards and Policies Director (CF5)	20 min
Group C	Environmental expenditures Environmental liabilities Provisions for decommissioning cost	3	Director of Sustainable Development (DD7)	25 min
			Actor in charge of extra-financial reporting (extra CF4)	31 min
			Accounting Standards and Policies Director (CF8)	45 min
Group D	Environmental liabilities Provisions for decommissioning cost	2	Financial communications manager (CF2)	1 h 05 min
			Auditor – assurance practitioner (CAC COFRAC 2)	48 min
Group E	Environmental Liabilities and Provisions for decommissioning cost	3	Director of Sustainable Development (DD2)	1 h 40 min
			Accountant (CF1)	32 min
			Auditor – assurance practitioner (CAC COFRAC 1)	21 min
Group F	Environmental liabilities Provisions for decommissioning cost	2	Director of Sustainable Development (DD4)	22 min
			Accounting Standards and Policies Director (CF3)	40 min
Group G	Provisions for decommissioning cost	2	Director of Corporate Social Responsibility (DD6)	35 min
			Accounting Standards and Policies Director (CF6)	31 min
Group H	No disclosure	2	Accounting Standards and Policies Director (CF7)	30 min
			Auditor and assurance practitioner (CAC3)	24 min

**Table 3.**  
Description of cases

#### 4.3 Data analysis

Both types of data were analysed separately. Initially, we organized and coded all annual reports along the following information: EAI amounts, type of data and any additional information contained in the notes to the financial statements and the sections dedicated to the environment. This step yielded a table with all this information. We then analysed interviews related to each company. A thematic analysis of the 20 interviews was conducted. Each interview was recorded using a digital recorder, except for two for which extensive notes were taken, and fully transcribed manually in text format. After transcription, each interview was read several times by the two researchers in order to overcome bias and ensure internal validity of the research before subjecting the transcripts to a thematic analysis.

The objective of the analysis was to identify and classify our data. Themes were created based on the issue being discussed in the interview. This process allowed us to code the data and then to identify new codes as we read and interpreted the data. The results were then discussed and compared.

To extract our overall findings after comparing the cases, we have built a table with the main claims of each group regarding the two studied items, based upon the last issued annual report (as the base of the interview) and the relevant interviews. The following findings highlight the most convergent and prevalent perspectives of managers and auditors based upon the eight case studies, thereby providing an explanation of how these agents attempt to comply with various regulations concerning EAI that they have (or have not) disclosed.

### 5. Separate logics of environmental liability and expenditure items

Based on the joint analysis of both disclosed figures and their related explanations by the responsible actors, the findings show difficulties of enforcement of regulations when organizations produce EAI. The primary finding is that EAI as a consistent item does not exist. Rather, it appears that ELs and EEs have separate logics, or separate scopes of competencies and concerned actors, as well as different sets of guidelines and objectives (see Figure 1). On the one hand, ELs and assets that appear in the balance sheet comply with accounting standards. Despite the difficulty of shaping and estimating their amounts, managers perceived the institutional pressure to disclose. On the other hand, although formally connected to assets and liabilities through expenses, EEs are not perceived as a highly requested item to disclose, and certain factors limit their disclosure in the French context.

#### 5.1 Shaping environmental liabilities with difficulties: accounting standards, pressure to disclose and competing skills

In our sample, all companies (except one) disclose ELs in the balance sheet and/or in the environmental section of their annual reports. These liabilities (displayed in Table 4) are related to the de-commissioning and restoration of sites or related to greenhouse gas (GHG) allowances except for one that indicated that the provision is dedicated to “protection of

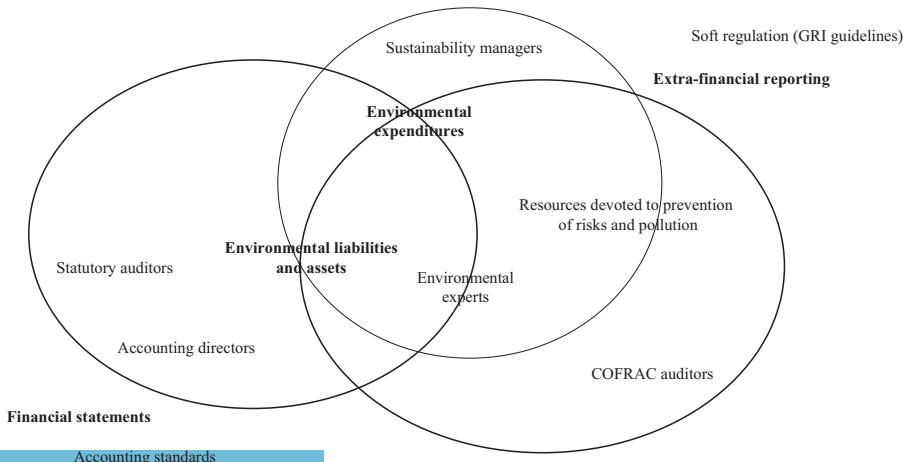


Figure 1. Simplified schematic of overlapping scopes and actors

environment". Three firms report significant amounts of liabilities related to their activity and industry. However, in the annual reports, detailed explanations of these amounts are often absent or quite limited. The content analysis based on excerpts of annual reports for environmental provisions is provided in Table 5. Consistent with this observation, the interviewed auditors confirm that the economic information used to justify the provision is usually non-existent in disclosures.

**Table 4.**  
Reported amount of  
environmental  
liabilities in proportion  
to the total year's  
balance sheet – 2009  
to 2015

Year	Group A	Group B	Group C	Group D	Group E	Group F	Group G	Group H
2009	0.0087	0.0007	0.1624	0.0477	0.0162	0.0075	0.0053	–
2010	0.0092	0.0006	0.1581	0.0457	0.1747	0.0066	0.0052	–
2011	0.0076	0.0005	0.1748	0.0456	0.194	0.0069	0.0066	–
2012	0.0073	0.0004	0.1718	0.0476	0.2173	0.0077	0.0079	–
2013	0.0073	0.0004	0.1737	0.0584	0.2137	0.0073	0.0083	–
2014	0.0071	0.0002	0.1728	0.0614	0.2475	0.0075	0.0083	–
2015	0.0069	0.0002	0.177	0.0634	0.2504	0.0082	0.0015	–

Group	Discloser	Annual report excerpts
A	YES	"The information gathered during this review led the company to reassess the provisions to bring them up to [amount in euros] on 31 December 2015 [ . . ] In accordance with the company's internal standards, a semi-annual review of these provisions is carried out and, if necessary, updated according to new information brought to the company's attention"
B	YES	"As of December 31, 2015, the other provisions include [amount in euros] of provisions related to compliance with environmental regulations"
C	YES	X pages of disclosure, with some paragraphs emphasizing the following: "Provisions made by the Group for spent fuel treatment operations and for the long-term management of waste may increase significantly in the event of revised cost estimates" "The deconstruction of the existing nuclear fleet could present difficulties that are not envisaged today or be significantly more expensive than what is planned today" "The amount of dedicated assets created by the Group to cover the costs of its long-term nuclear commitments (radioactive waste and decommissioning) may need to be revised upwards and lead to additional disbursements"
D	YES	Provision of protection of environment Provision for site restitution with details about the discount rate "The Group cannot guarantee that it will not incur any uninsured loss and there is no guarantee, particularly in the case of a major environmental disaster or industrial accident, that such an event may not have an impact unfavourable on the Group"
E	YES	"Future expenditures associated with end-of-cycle obligations and rehabilitation of classified installations are examined and specific provisions are established. Provisions rules for end-of-life-cycle operations, with a discounted amount of [amount in euros]"
F	YES	"Provisions for dismantling" "In the absence of a specific standard or interpretation, the Group has decided to apply Regulation ANC 2012-03. (Group F) does not buy greenhouse gas emission allowances for trading on the evolution of their price [ . . ] At December 31, 2015, the asset and liability positions represent insignificant amounts"
G	YES	"Provisions include site remediation costs [ . . ], waste management costs, dismantling costs [ . . ]"
H	NO	"Other provisions mainly include [ . . ] provisions for the share of CO <sub>2</sub> emissions not covered by the allocation of free allowances and provisions for dismantling of buildings"

**Table 5.**  
Content analysis of  
annual reports (2015)  
for the environmental  
liabilities item

If you look at the annual report, when you examine the consolidated financial statement, you still have only little information. The company only explains the accounting method of liabilities regarding environmental pollution and environmental issues. Usually, you have a line and then that's it. (CAC2)

Compared with the limited disclosures, most interviewees consider ELs to be a high-stakes topic that will increase over time. The disclosure of the item "environmental liabilities" is clearly framed by accounting standards.

There is an accounting standard that clearly states when we have to account for provisions. So, we comply with IFRS. And if we know about pollution or a need for demolition, we account for a one-shot provision at the time of being informed or when clean-up becomes compulsory. Otherwise, we account for it gradually during operations. In any case, we will always position ourselves in relation to the IFRS requirements. (CF5)

There is an existing shared belief that ELs constitute a new field of competencies for accounting actors and thus represents a future key area in the accounting actors' domain. Potential legal consequences for environmental damages in the context of higher regulation enhance the vigilance of accounting directors, who acknowledge the higher expectations by civil society and, therefore, by investors for relevant figures on EL. Accordingly, accounting directors need to increase their focus on EL estimates compared to the time when those items were not significant.

The only thing where I really think we have an accounting mission is on the liabilities. Because there are unfortunately accidents from time to time, there are legal proceedings that result in fines. And these fines must be paid. So, this is in our accounts in the form of expenses related to these liabilities. (CF2)

At the Group C level, the environment and sustainable development part is really crucial because there is hardly a week without a press article on one of our sites. The slightest incident, the least thing is completely scrutinized and closely observed. So, there are questions that happen at the level of sustainable development or investor relations. What is a little complicated is that we try to be as clear as possible without drowning the reader in too much information. If you give too much, it loses legibility. The decree also "forces" us to comply with the level of information that must be given. What we also try to show – in particular in the notes – the decomposition of these provisions [...]. (CF8)

However, the measurement of EL is problematic. Some problems related to clean-up provisions appear because actors do not know where to cut off their estimates (limiting the pollution of the neighbour or the successor). Contrary to usual transactions, the scope of environmental responsibility of the firms is evolving as laws and regulations on the environment expand.

The difficulty is that once you have given the amount, what detail do you give and how is this amount calculated? I am thinking of provisions for the rehabilitation of sites in (industry) activity for example. There is a notion of quantity and a notion of price because you have to plunge the price of reprocessing per ton depending on the (indicator measure). This is confidential information that you do not have. I think there is debate. I think this is important information. (CAC1)

Two years ago on a site, we had a discussion with the chief financial officer. I went to see him, there was the audit director too, and they said "well, liabilities are not enough, we need to increase the amount". It was not nothing; it was a small site, and there were 200 million euros more. (DD2)

The figures appear to be significant in some specific industries and some statutory auditors have to use environmental experts who challenge the internal estimate. These internal estimates fall within the scope of the sustainability manager, but actors in the field of finance

dominate the debate because of the potential impact, especially in cases of acquisition or disposal of property.

On these provisions, there are experts involved because our company has been – for some twenty years – experts in environmental auditing. We have also developed a small firm specialized in due diligence, which worked specifically on environmental risk assessment. (CAC1)

As the topic of the environment receives more attention in business, sustainability managers become more important in organizations and interact more with accounting teams. These growing connections between sustainability managers and accountants create new networks of actors that contribute to the production of EAI figures. Accordingly, various actors are involved in information production and have a common perception of EL and the extremely high potential risk associated with them. Given this increase in risks surrounding EL and the difficulty of estimating them, accounting directors need the expertise of sustainability managers more than ever before. Sometimes, with the help of the expert services of the company, directors of sustainable development participate in the production of accounting information. However, some tensions or misunderstandings may arise between domains of specialization as revealed by the collective warning regarding the importance of the topic.

I had some pretty tough discussions with the statutory auditor, their environmental experts. . . I felt they were not competent. So, it's not that I rejected them, but I thought there was confusion. (DD2)

We have environmental and soil pollution liabilities that are extremely important and it's more related to orphan sites and what we call orphan sites that are not related to our activities. It does not mean that our sites do not have liabilities, they do, but it is a small part of the liabilities of the company in relation to this legacy of an industrial platform and sites that are empty and on which remediation is planned to value them. They are rehabilitated at a fairly high level because of the company's responsibility. (DD1)

When the amount is highly significant, departments with specific expertise come into play. Calculations for provisions are not only a matter of economic relevance but are also driven by evolving regulations about the environmental responsibility of businesses.

The dismantling of (sites) today is in progress. So, we have 'expertise' internally in the realization of this type of project. It's really a project as such to dismantle a (site) so there is a department, and it coordinates the different quotes and ensures that the calculations of the provisions correspond well and are the most relevant, correct and that all the necessary provisions are made in accordance with the regulations. (CF8)

Because ELs are a highly evolving item, depending upon the environmental laws, the scope of competencies has to be broadened to achieve measurement.

People who make the connection eventually are the lawyers. Actually, people who deal with the environment are working on some aspects with lawyers specialized in environmental law and who help them on a number of things. When there are contentious stories or things like that, these lawyers make the connection with the accountants for the accounting of expenses or liabilities in our accounts. (CF2)

Ultimately, with the creation of the COFRAC auditor, EL is becoming a new space for competition and an evolving market for audit firms. These economic and institutional battles could impact the number and range of EL disclosed.

We have this expertise specifically, and that is why I insisted on the fact that in the department we are almost all environmental engineers. But other audit firms may not have that profile. At [audit firm's name], it was decided to have experts [ . . . ] For EL, according to the signatory, either the expert does it alone with his teams of finance managers, or he solicits us. Actually, in certain groups and at the request of the signatory of the cabinet we intervene, but not systematically. All that is related to

article 225 of the Grenelle 2 Law is the focus of the sustainable development team. Clearly, we really do not have the right to mix because we are accredited by COFRAC and we must prove this skill. Behind there is some training and expertise. Not everyone can do that. (CAC COFRAC 2)

### 5.2 Disclosing environmental expenditures (or not): weak definitions and poor reliability

Distinct to the disclosure of EL, we find that EEs are poorly reported over the period in our sample and tend to decrease (see Table 6). Only three companies out of eight had disclosed dedicated amounts in the last year of observation, with each of them complying with a different guideline. For instance, Group A gives its own definition of the item while mentioning the Grenelle 2 Law; Group B relies on the EN31 indicator from GRI-G4; while Group C mentions a French accounting recommendation (CNC No 2003-r02 recommendation).

The five other groups did not indicate any amount of EEs and relied on the space provided by the Grenelle 2 Law to inform about the “resources to protect environment” in a narrative form. Among these five non-disclosing groups, three chose to mention the existence of such expenditures while the two others did not discuss the topic. Extensive excerpts of the eight annual reports dedicated to the item are displayed in Table 7. This table documents that the item refers to a variety of categories and provides the expenses incurred to prevent environmental impacts as well as health and safety costs.

More importantly, the disclosed item is not always consistent with the information inside the annual report. Indeed, as a basis of accounting, a firm incurs EEs that it must classify as either an expense in the income statement with counterpart as a liability or as an asset that is included along with the liability. For example, Group A gives an amount of more than 200 M for “investments and operating expenditures devoted to the prevention of environmental risk and pollution”, whereas at the same time, the section on environmental provision explains an increase (allocation) of less than 10 M. Elsewhere in the annual report, there is no mention of an environmental asset. Accordingly, a huge amount of information associated with EE is not clearly provided to readers and leads to accounting inconsistencies. In light of the interviews, the referenced guidelines for EEs in the annual reports appear to raise more questions than solutions for management. When calculating EEs, the compliance to various guidelines that are not accounting standards is the subject of doubt and debate. The existence of guidelines does not strongly drive the decision to disclose or the amount to elaborate. According to managers, organizations face weak definitions of EE.

About expenditures ... this item has been included from the beginning ... In fact, since the beginning, we used the GRI standard. We were a member of the World Business Council for Sustainable Development (sighs) ... For me, environmental expenditures, that's a lie. (DD2)

So, if you want, for the same situation, you can have a number that will go from 1 to 10. And for me, I think that it seems not possible to regulate because the legislator obviously knows less about the subject. It's already complicated for us. So, I cannot see how he could explain how things should be done. (DD5)

**Table 6.**  
Reported amount of environmental expenditures in proportion to the annual turnover – 2009 to 2015

Year	Group A	Group B	Group C	Group D	Group E	Group F	Group G	Group H
2009	0.0130	–	–	–	0.0220	–	–	–
2010	0.0117	–	–	–	0.0250	–	–	–
2011	0.0106	–	–	–	0.0293	–	–	–
2012	0.0081	–	0.0137	–	–	–	–	–
2013	0.0087	0.0007	0.0135	–	–	–	–	–
2014	0.0080	0.0007	0.0144	–	–	–	–	–
2015	0.0064	0.0007	0.0132	–	–	–	–	–



Group	Discloser	Annual report disclosure reference	Annual report excerpt
A	YES	<i>Cdc L.225-102-1 al. 5 (concordance table)</i> “Resources devoted to the prevention of environmental risks and pollution”	“Investments and operating expenses devoted to the prevention of environmental risks and pollution are included in the investments and expenses incurred for the implementation of the Group’s HSE policy [. . .] These expenditures include HSE staff costs, consumables, energy and labour costs of processing facilities, the cost treatment or recycling of waste, environmental taxes, studies and control services”
B	YES	<i>EN31 of GRI-G4 (concordance table)</i> “Amount of research and product innovation expenses devoted to efforts for the environment and controlling energy consumption”	“Upstream of the [. . .] projects, approximately [. . .] million euros are allocated annually to research and advanced engineering. A significant part of the expenses of research and advanced engineering (of the order of 60%) focuses on innovations specifically aimed at reducing [. . .] emissions, which is both a factor of attractiveness of products, a regulatory imperative, particularly in Europe, and a major lever for reducing Group’s environmental footprint” “(Group B) is investing [. . .] in the renewal and improvement of its facilities in terms of environmental protection, protection of people and property and production and distribution of energy, plus the operating costs associated with these activities”
C	YES	<i>CNC No 2003-r02 Recommendation</i> “Expenditure incurred to prevent, reduce or repair the damage that the enterprise has caused or could cause by its activities to the environment”	“The definition of environmental protection expenditure is based on the recommendation of the National Accounting Council of 21 October 2003 (itself resulting from the European recommendation of 30 May 2001) Environmental expenses are identifiable additional expenses incurred to prevent, reduce or repair the damage that the company has caused or could cause by its activities to the environment”
D	NO	–	“(Group D) commits and will continue to incur significant expenditures to comply with increasingly complex health, safety and environmental protection laws and regulations. The expenses incurred could significantly affect the group’s operating results as well as its financial situation. (Group D) is subject in many countries to increasingly stringent environmental, health and safety laws and regulations and may incur significant costs to comply with them”
E	NO	–	

(continued)

**Table 7.**  
Content analysis of  
annual reports (2015)  
for the environmental  
expenditures item

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33,6

1384

Table 7.

Group	Discloser	Annual report disclosure reference	Annual report excerpt
F	NO	–	“Nearly 60% of the Group’s 2015 innovation expenditure is devoted to work on the protection of life and the environment and is an engine for growth in revenue related to life and the environment in the future, around the following main axes”
G	NO	–	“(Group H)’s policy integrates environmental management into all of its activities, which makes it difficult to identify the share of investments with only environmental justification”
H	NO	–	

For all interviewees, this information does not appear to be a reliable figure, regardless of whether the firm discloses it. The absence of a compulsory accounting standard for measurement and classification (which expenses to gather to estimate EE) leaves room and questions for managers. Considering that Grenelle 2 does not request an amount, the main driver for elaborating on the item remains the INSEE survey. Despite the existence of a prior recommendation (CNC *No* 2003-r02), such a figure is perceived as an item with low reliability. Related to this concern, all interviewees indicate the difficulty of splitting internal costs between environmental and non-environmental costs because of the lack of a measurement method. Thus, in addition to fulfilling the INSEE survey, companies make a choice whether to publicly disclose this information.

Every year, we have surveys that must be performed at our sites, such as the INSEE annual mandatory survey on environmental expenditures, and it is a puzzle to provide this kind of information there because . . . if we answer, we give a false image. So, the question is to answer and give a false image, even if it is approached at best or exaggerated at best? Or, in contrast, is it necessary to give nothing, because if we gave something, it’s wrong? [ . . . ] It may be investments or operations, so CAPEX or OPEX. It’s always a difficult exercise [ . . . ] for example I had a debate with CDP, do you know about CDP [5]? On the subject of water, where they also ask the question “what did you spend this year for water?” And they compared that with the previous year. And I told them that it was completely stupid, because here too, if I construct a treatment plant on a site, it cost several million euros in investment that will be reported in a year, but hopefully, I do not construct purification plants every year! (DD1)

In our study, some managers provide arguments for not disclosing the EE item. These arguments rely on the perceived weakness of regulation. With Grenelle 2 and the “comply or explain” principle, the regulation is not binding anymore, and the disclosure of EEs has moved outside of the formal requirements.

Today it is difficult for us to identify, to isolate environmental expenses because in general, it is done in much more global investments. If ever there was a law to ask us to isolate and identify, I think we will be able to comply with the law, but it would force us to do things internally that we do not do today. (CF2)

Grenelle 2 states that “resources devoted to the prevention of risk and pollution” must be disclosed, but it is rather imprecise . . . Finally, as the text is imprecise, without any requirement to precisely disclose the expenditures and have them audited etc . . . Well, finally, let’s say we gave up because there was no authority on these accounting and management jobs, etc. (DD5)

Given this space to interpret regulation, EEs are included under the domain of management accounting rather than (statutory) financial accounting. As a financial reporting director explains:

I am not directly involved in it, but I know that it has a lot of things, including the INSEE surveys, but also forms to fill out for the number of pages that we used, etc. The accounting bridge for an EE that I am involved in is whether it is an expenditure that must be expensed or an expenditure that can be capitalized or included in inventory? [...] We are left with the accounting treatment of the expenditure. Aggregation of expenses, their qualification, their typology for the reporting, we are not involved at all on it. (CF8).

Here, the role of COFRAC auditor appears to be ambivalent. When disclosed, the EE item falls within the scope of the statutory auditor because of its financial nature. This item is not part of the 42 items requested by the decree of the Grenelle 2 Law and thus is left outside of the official scope of COFRAC auditors. However, interviewees contend that COFRAC auditors are naturally involved given the proximity of their usual field of duty. Accordingly, EAI creates an area of overlap between financial reporting and sustainability managers as well as between statutory auditors and environmental assurance providers (here, COFRAC is the auditor; see Figure 1). The boundary of COFRAC's work is thus not so obvious. Because COFRAC auditors must prove their competence and legitimize their mission along with the statutory auditors, they could prefer to avoid risky additional figures and urge companies not to disclose new items.

We, as CSR auditors ... our text is Article 225 of the Grenelle 2 Law, and you do not have the expenditures as such [...] Grenelle 2 Law has only a link with the Sustainable Development team. We really do not have the right to mix teams because we are accredited by the COFRAC and we have to prove this competency. (CAC COFRAC2)

At this early stage of compulsory environmental assurance in France, it is difficult to assert what could be the effect of the overlap of competing actors and auditors on firms' disclosure over a long-term period. Both categories of auditors do not find incentives to disclose low material figures.

We seldom check this information for a number of reasons. First of all, because in our audit procedures, there are two levels. In-depth work is done on the information deemed to be the most material for the groups. And then on the other works, it is more like consistency reviews. And it is true that in the list of information considered as the most material, we have very rarely seen this information that stands out as material information in CSR [...] Moreover, if you look at the CSR part on environmental expenditures, there is not much information. I believe that in the information that is given, they have the choice to not disclose information that may have an impact ... So, they are hiding information by saying "we do not want to publish this information because we give elements, and if we want to sell a site or if something happens. ...". We provide elements on expenditures, and we do not necessarily want to publish this information in the annual report. So, information may be left out and the subject may not be properly considered. (CAC2)

It is notable here that none of the auditors made the connection between the EE and EL disclosures within the same company. Overall, the interviewees call for higher standards and guidance on the topic of EAI that would be more consistent and similar to accounting standards with international compliance. The high discrepancy between actors' interpretations in organizations based upon weak and loose definitions is perceived as an obstacle to creating shared norms on EAI in the marketplace.

I think that we need a global approach similar to IFRS standards on environmental and social issues. I think that we cannot continue to comply with each other according to our vision of how we recognize things in accounts. Environmental expenditures are no more and no less than the other items. My main concern is to have extra-financial reporting that meets the same requirements as IFRS. (DD7)

The major point is to come up with definitions of these topics and ensure that your national and international contributors respect them. This raises a major point that there is not, so far, a single French or European or international standard on these subjects. (CAC COFRAC2)

In summary, we find that ELs and EEs are driven by separate logics. Although both items are EAI, they do not follow the same range of regulations and are not performed by the same actors at the same level. EL is contained within the core scope of accounting directors and statutory auditors, while sustainability directors and COFRAC auditors are peripheral actors that may require greater roles. Legal requirements on the environment and accounting standards provide increasing incentives to disclose higher amounts. Within the same organizational setting, EEs are subject to criticism related to a low materiality (relative to the perceived materiality of ELs) and confusion about their definition. Although being a financial item by nature, EEs suffer from loose standards and too many discrepancies among disclosers on the marketplace. Finally, in both cases (EL and EE), our study documents how different actors and networks interpret a common frame of regulation to shape EAI norms, thus revealing a limitation of producing EAI.

## 6. Discussion, conclusions and areas for future research

The objective of our study was to better explain how organizational insiders adapt to comply with various levels of regulation and to what extent their role in shaping EAI is displayed in annual reports. Indeed, to the best of our knowledge, few prior studies have examined this specific part of CSR reporting, which partly overlaps with financial statements, via qualitative approaches (Laine *et al.*, 2017) that represent a complementary avenue for research in social and environmental accounting. We draw on Laine *et al.* (2017) and Bebbington *et al.* (2012) to further investigate how managers consider regulations in EAI production. Our study provides insights into the relative role of accounting (standards and regulation) in the interplay between commercial laws and other guidelines. The originality of this study lies in the replication of eight case studies of top listed firms in sensitive industries, combining the analyses of two sources of data. Environmental accounting figures and information disclosed in annual reports have been extensively analysed, and then interviews of key managers have been conducted to provide insights via “behind the scenes” explanations. In addition to accounting and sustainability directors, we interviewed two types of auditors (legal and environmental assurance practitioners; namely, COFRAC), because they appeared to be key actors in shaping EAI. The multiple case studies approach allowed us to identify shared explanations and highlight common views of among companies. Within the setting of our case studies, some observations can be drawn to give additional insights to the literature.

First, a major finding regarding EE item relates to the difficulty in enforcing a set of regulations that are imprecise and provide weak definitions. Our study documented that there are several limitations to the reliability and relevance of EAI at this point. The overall content analysis of disclosures in annual reports confirmed that the details given to potential users are very poor, which supports prior observations (Cho and Patten, 2008; Criado-Jiménez *et al.*, 2008; Larrinaga *et al.*, 2002). Then, the content analysis of interviews gives some additional insights into the conditions that lead to limited disclosures. Specifically, it is notable that EEs are perceived as a highly arbitrary amount according to the key managers’ perspectives. The shift of “environmental expenditures” towards “resources devoted to prevention of risk and pollution” under French law may have limited the disclosure of this item. However, although managers claim that the EE category is vague and does not comply with specific requirements in terms of disclosure, such information is sometimes included in annual reports. Given the confusion surrounding this item, it turns out that its disclosure is more surprising than its absence. Our findings are consistent with the idea of

Laine *et al.* (2017, p. 609), who stated that “*we remain sceptical regarding provision of environmental expenditure and investment figures, which despite their seemingly accurate and precise form, appear to include mainly arbitrary and subjective allocations*”. Concerning ELs, estimates evolve as the environmental regulation evolves. Remediation of sites becomes increasingly complex and coercive, leading to the disclosure of higher ELs. Moreover, potential impacts of ELs on the price of future acquisitions or sales of subsidiaries are likely to limit disclosure. Then, considering managers’ narratives about their own disclosed figures, EAI does not seem to be stabilized and is subject to criticism. Accordingly, we contend that environmental accounting figures should be used with caution.

Second, we were able to shed further light on the emerging role of auditors and the formation of clusters of agents concerning the fabric of EAI. As a common pattern among studied organizations, it appears that the involvement of actors on either item (EE or EL) is not the same. EEs are mainly in the domain of management accounting and thus under the scope of sustainability directors. Definitions for EEs used in annual reports are not in the domain of accounting standards but rather in the domain of extra-financial reporting (GRI, INSEE, etc.). Thus, being a non-GAAP financial item, EEs embody the overlap between the scope of financial reporting and sustainability reporting. Our study shows the possible emerging role of COFRAC auditors, who are likely to discourage such disclosure. In addition, actors of the same organizations highlight the important issues surrounding EL disclosure as well as the difficulty of assessing liability amounts. Given this difficulty, the expertise of sustainability managers is needed, and avoiding litigation and transaction risks is a high priority. Backed by financial accounting, EAI creates a new perimeter that includes both accounting directors and directors of sustainable development and thus creates new interactions, while in organizations, these actors have no direct hierarchical link. The possible emerging networks of actors to produce EAI raise some questions on the market of assurance and newly required competencies for accountants in that domain. In that perspective, we find it interesting that EAI is becoming increasingly colonized by auditing (Power, 1991) notwithstanding the lack of stability in standards and norms. Sustainability assurance is a relatively new form of assurance and the methods and standards are still evolving (Farooq and de Villiers, 2019), and COFRAC auditors need to gain legitimacy (O’Dwyer, 2011; O’Dwyer *et al.*, 2011). We believe that this role is intriguing because it suggests an unintended influence; auditors are engaged for the preparation of annual reports but not necessarily in disclosure choices. Facing a lack of real knowledge of what good EAI should be, actors agree to let audit teams be involved in helping to shape the environmental accounting figures to report, which could have unexpected consequences; thus, we contend that it is an avenue for research in EAI.

Third, our study documented that the same portfolio of regulation (general laws, comply or explain principle, voluntary standards and guidance) does not always produce homogeneity of disclosing behaviours among companies. As underlined by Bebbington *et al.*, “*formal legislation alone may not be sufficient to create a norm*” (2012, p. 90). This leads to interpretative strategies of disclosures stemming from difficulties of enforcement rather than stabilized choices. Given the absence of specific requirements in the law to provide an amount of EEs, various factors limit the likelihood that a firm will disclose such a figure. According to the interviewees, an important limitation is due to the weakness of EE definitions and guidance; however, there is a multiplicity of standards (CNC recommendations, GRI, INSEE). In terms of normativity, these findings concerning EAI disclosures and related managers’ narratives raise several issues. For instance, the impact of regulation in favour of a higher quality of disclosure is not clear at all. Actually, organizations do not clearly develop disclosure strategies, but rather they face some misunderstandings regarding law enforcement. No one really knows how to define and measure the information that should be disclosed, which is especially sustained through interpretation and share meanings. In the early stage of environmental disclosure, Freedman and Stagliano (2002) had already

underlined the need to distinguish regulation from enforcement. The authors emphasized that “*extant environmental disclosure laws first must be enforced before an argument can be made to promulgate new regulations*” (p. 95). Several years later, we may renew the above comment and express additional claim. Indeed, the various layers of regulation leave empty the accounting guidelines for practitioners. Mandatory EAI regulation is still emerging in the sense that accounting standards and guidance are missing.

Fourth, another interesting finding in the French setting is that interviewees (with the exception of one company) do not claim preference for self-regulation in that domain, which could allow them to avoid state regulation. Rather, they express a need for further guidance, more specifically for accounting guidance. That said, companies are heavily involved in institutional networks (benchmarks, anticipation of norms); thus, the adoption of a new law is not a “big deal”. In some cases, understandings have been developed through existing inter-organizational working groups. This finding pertains to the “tradition of norms”; that is, the actors need to give meaning to the regulation. From this perspective, this research contributes to supporting the idea that the norm emanates from the elaboration of rules produced by organizations; the law being a fundamental part of the development of norms (Botzem and Hofmann, 2010). Various actors have become involved in the standard-setting process and actively promote the directions that this process should take (Botzem and Quack, 2006). Furthermore, as noted by our interviewees, Europe should not go further in regulations because other economic areas (e.g. China) do not publish equivalent information. This research highlights the need for a general framework. As argued by one of the directors of sustainable development we interviewed, environmental accounting suffers from this immature point of view, which reinforces the fact that EAI disclosure is limited to existing laws, which in turn limits our understanding of the concept of environment (Larrinaga-González *et al.*, 2001).

This qualitative study provides a greater understanding on why the requirements of French laws did not lead companies to more significant disclosures of EEs (Senn, 2018). However, a limitation of our study derives from methodological choices made and the particular setting analysed. Although the eight case studies were conducted to help reveal common views among listed companies, external generalization would require a larger sample. Also, we did not analyse stakeholders’ views. Rodrigue *et al.* (2013) found that pressure from various stakeholders has a great impact on a firm’s environmental strategy.

Several further research perspectives might be drawn from the observations presented here. Perception or decision impact studies conducted among different stakeholders could provide information on the use of environmental accounting figures and their impact on decision making. Our study also opens up new research perspectives on how a portfolio of regulation could limit or allow disclosure strategies that are not intentional at the organization level but rather are driven by key actors’ behaviours (Crozier and Friedberg, 1977). This could bring further insight into normativity. Furthermore, comparable reporting around the world depends on monitoring, enforcement and market incentives which differ greatly in different countries (Barbu *et al.*, 2014). To illustrate, the institutional context of Chinese companies is characterized by the weight of the political institutions because most of these companies are state-owned; thus, the state is deemed to be the carrier of environmental concerns of civil society and employees. The study of other determinants of reporting (extra-financial) through a qualitative approach is a future avenue of research. Additionally, this study points to another emerging field of investigation related to the role of environmental auditors and more generally on the evolution of scopes of needed competencies to produce EAI.

#### Notes

1. It is important to note that the French employers’ association MEDEF published in May 2012 a methodological note showing the correspondence between obligations deriving from the law and

international standards; the note considers these “resources” to be the financial resources used for environmental matters.

2. In France, a co-audit of consolidated financial statements is compulsory.
3. INSEE collects, produces, analyses and discloses information on the French economy and society.
4. *Autorité des Marchés Financiers*, the French market regulator; Website consulted: <http://www.amf-france.org/>
5. The CDP is a not-for-profit organization which collects, every year, carbon data from largest listed firms through a questionnaire.

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## Appendix 1 Interview guide

Preliminary remark: "given the environmental accounting information disclosed in your last annual report..."

### A1

#### Definitions

- (1) How would you define the environmental issues facing the company?
- (2) Could you describe the management of these environmental issues, including organization and management tools?
- (3) How would you define the EAI?
- (4) What is the main EAI, especially in relation to your company and its industry?

### A2

#### Reporting process

- (1) Could you describe the EAI reporting process? Have you set up specific information systems to understand and evaluate such information? If so, which steps and procedures are followed? Is the reporting done at the group level or by subsidiaries? Which ones?

- (2) How is this information estimated? Do you use an expert?
- (3) When did the company start to disclose EAI in the annual report? How was this decision made?
- (4) Do you use specific guidelines? Do you use IFRS?
- (5) Are environmental reporting and financial reporting related? Which actors within the company participate? Under the responsibility of whose direction?
- (6) Have you had some personal training due to changes in accounting regulations in this area? If so, could you please give details?
- (7) What was the impact of the Grenelle 2 Law on your approach and your internal organization?
- (8) How would you define the concept of materiality?
- (9) In your professional practice, are there issues perceived within the organization, particularly from the perspective of the materiality of the information?

### A3

#### Actors

- (1) Which actors are involved in decision making about the information?
- (2) What role do you play? What roles do other actors play?
- (3) Who decides to disclose EAI in the annual report?
- (4) Are you or other actors involved in a working group in connection with sustainable development or EAI?
- (5) Do you have specific requests for such information?
- (6) Which key external stakeholders are more attentive to this information? In your opinion, what are their expectations?
- (7) What are the company's relationships with financial auditors? Are there issues raised by the financial auditors?

### A4

#### Disclosure policy

- (1) What is the company's interest in disclosing such information?
- (2) Which factors could influence decision-making?
- (3) Do you compare practices with other companies?
- (4) Has the Grenelle 2 Law changed your disclosure strategy concerning this information? In general?
- (5) Do you think that a change in regulations is necessary? If so, in which way?

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