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RESEARCH ARTICLE

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Greenwashing and environmental communication: Effects on stakeholders' perceptions

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Abstract

Since the first Earth Day in the 1970s, corporate environmental performance has increased dramatically, and cases of greenwashing have increased sharply. The term greenwash refers to a variety of different misleading communications that aim to form overly positive beliefs among stakeholders about a company's environmental practices. The growing number of corporate social responsibility claims, whether founded or not, creates difficulties for stakeholders in distinguishing between truly positive business performance and companies that only appear to embrace a model of sustainable development. In this context, through the lens of legitimacy and signalling theory, we intend to understand and assess the different influences that various types of misleading communications about environmental issues have on stakeholders' perceptions of corporate environmental responsibility and greenwashing. Stakeholder responses to an environmental scandal will also be assessed. The hypotheses tested through a four-for-two design experiment reveal that different levels of greenwashing have a significantly different influence on stakeholders' perceptions of corporate environmental responsibility and stakeholders' reactions to environmental scandals.

KEYWORDS

corporate social responsibility, environmental communication, experiment, greenwashing, legitimacy theory, signalling theory

1 | INTRODUCTION

Since the mid-1960s, with the affirmation of the environmental movement, the phenomenon of misleading environmental communication has begun to be identified at the level of both actions and business strategies. This phenomenon was initially defined as "eco-pornography" in 1972 by former advertising executive Jerry Mander. The term greenwashing was first coined in 1986 by biologist and environmental activist Jay Westerveld (Pearson, 2010), but it is from the seminal work of Greer and Bruno (1996) that the number of studies on greenwashing has grown significantly (Laufer, 2003), with a substantial leap in 2011 (Lyon & Montgomery, 2015). In the last decade, greenwashing has become an increasingly significant topic in the academic literature because of its growing operational importance and because it raises challenging issues and multidisciplinary research opportunities (Lyon & Montgomery, 2015).

Despite growing interest from academics and professionals, there is no generally accepted definition of greenwashing in the current literature. Due to its interdisciplinary nature, different definitions and perspectives have been adopted by scholars in the analysis of greenwashing practices (Guo, Tao, Li, & Wang, 2017; Nyilasy, Gangadharbatla, & Paladino, 2014; Roulet & Touboul, 2015; Seele & Gatti, 2017; Wilson, Robinson, & Darke, 2010). In describing greenwashing, several scholars base themselves on the definition of the Oxford English Dictionary, others adopt the TerraChoice perspective, and others elaborate their own definition (Delmas & Burbano, 2011; Lyon & Montgomery, 2015; Walker & Wan, 2012). Whereas the Oxford Dictionary defines greenwashing as "disinformation

disseminated by an organisation so as to present an environmentally responsible public image," TerraChoice (2009) considers greenwashing "the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service." Interesting perspectives are offered by Delmas and Burbano (2011), which considers greenwashing a "poor environmental performance and positive communication about environmental performance," and Lyon and Montgomery (2015), which finds that "the word greenwash is used to cover any communication that misleads people into adopting overly positive beliefs about an organization's environmental performance, practices, or products."

In recognising greenwashing as a misleading communication practice concerning environmental issues, many studies have tried to understand why and how firms engage in greenwashing (Chen & Chang, 2013; Du, 2015; Laufer, 2003; Testa, Boiral, & Iraldo, 2018; Vries, Terwel, Ellemers, & Daamen, 2015). According to Walker and Wan, there are two main motives for firms to engage in greenwashing: to obtain legitimacy (Cormier & Magnan, 2015) according to institutional (Oliver, 1991) and legitimacy theory (Suchman, 1995) and to communicate the firms' values with regard to green issues through a signal to stakeholders by engaging in symbolic actions or "green talk" (Connelly, Certo, Ireland, & Reutzel, 2011) according to signalling theory.

Although there is today a great deal of academic interest in greenwashing, the extant literature highlights the need for further research pointed to fulfilling some conceptual and empirical gaps (Lyon & Montgomery, 2015) and to studying the impacts and consequences both for stakeholders and firms' reputations of a corporate crisis due to a greenwashing scandal (Siano, Vollero, Conte, & Amabile, 2017). Lyon and Montgomery (2015) highlight the need for further research aimed at a broader inquiry of the taxonomy of the greenwashing phenomenon. The authors suggest paying attention to the role of visual imagery and rhetorical language in shaping green communication and messaging. An interesting issue concerning greenwashing, although it is little considered in the extant literature, is whether and how it can affect the actions and reactions of stakeholders and consequently corporate reputation.

Our investigation, blending elements of legitimacy and signalling theory (Campbell, 2003), aims to flesh out a broader taxonomy of greenwashing related to distinct levels and typologies of communication. We aim to analyse, for different levels of communication, the influences on stakeholder perception of corporate environmental responsibility and corporate greenwashing by measuring stakeholder reactions to environmental scandals. In our study, we adopt a four-by-two between-subjects design experiment, manipulating different levels of greenwashing and industry type (Cho, Phillips, Hageman, & Patten, 2009).

The paper is organised into four main sections. The first section presents the theoretical background and the hypotheses. The second describes the research methods in terms of the participants, variables, and experimental task. The third section presents and discusses the results, and the final section presents some conclusions.

2 | BACKGROUND AND HYPOTHESES

Previous studies have examined greenwashing at two main levels: at the company level and at the product level. At the corporate level, greenwashing is associated with a distorted dissemination of environmental issues that affect the entire company. At the product level, greenwashing is associated with an explicit strategy through which companies advertise, in an untruthful and distorted way, the environmental characteristics of a specific product or service (Delmas & Burbano, 2011; TerraChoice, 2009). If analysed at the company level, greenwashing is associated with distorted and/or selective disclosures in which companies disclose only good environmental strategies and actions, concealing negative ones. With this attitude, companies seek to generate a positive but totally misleading impression of the company's environmental performance (Lyon & Maxwell, 2011). Today, greenwashing at the company level is particularly significant both for the growing demand from stakeholders for high levels of responsibility and transparency (Bromley & Powell, 2012; Tang & Demeritt, 2018) and for the growing spread of real environmental crimes related to the so-called eco-mafia or eco-criminality (Massari & Monzini, 2004; Rege & Lavorgna, 2017). In recent decades, due to the growing sensitivity of stakeholders to environmental issues, it seems that greenwashing has become a widespread attitude among companies to try to outdo their competitors (Parguel, Benoît-Moreau, & Larceneux, 2011). Today, as a result, there is a growing scepticism on the part of stakeholders towards companies that communicate their environmental strategies (Prothero, Peattie, & McDonagh, 1997) and performances (Chen & Chang, 2013). Scepticism regarding communications on environmental issues has been studied mainly among young people (Aji & Sutikno, 2015), who are found to be particularly sensitive, especially in relation to the type and style of communication received (Musgrove, Choi, & Cox, 2018). Other studies (Besel, Burke, & Christos, 2017; Leung & 1Chan, 2006) have confirmed that young people, in particular university students, are very aware, informed, and receptive to issues related to the environment and environmental communication, for example, on climate change and ethical aspects. At the company level, greenwashing is a specific strategy that companies adopt to engage in symbolic communication about environmental issues without addressing them substantially in actions (Walker & Wan, 2012; Wong, Lai, Shang, & Lu, 2014). Whereas symbolic actions are associated with a company's future plans, substantive actions refer to what a company is currently doing. Greenwashing has its internal roots in the need to legitimise the company and lies in the essential perception that a company's actions are desirable, correct, or appropriate within a socially constructed system of norms, values, and beliefs (Suchman, 1995). According to previous studies (Dowling & Pfeffer, 1975; Lindblom, 1994), firms seeking to gain or maintain legitimacy have a greater incentive to use communication strategies to potentially influence stakeholders' perceptions. According to Alniacik, Alniacik, and Genc (2011), positive and negative information on corporate social and environmental responsibility influence the purchase, employment, and investment intentions of various stakeholders. Consequently, legitimacy became a critical feature for

companies because it can lead to stronger trade relationships, better job applicants, greater access to resources, and financial performance improvement (Aldrich & Fiol, 1994; Babiak & Trendafilova, 2011; Deephouse, 1999; DiMaggio & Powell, 1983; Oliver, 1991; Prakash, 2002; Walker & Wan, 2012).

In recent studies (Cho et al., 2009; Vries et al., 2015; Yoon, Gürhan-Canli, & Schwarz, 2006), the importance of the antecedents of greenwashing has been analysed, focusing on how and why information provided by firms about the reasons for their activities in environmental measures can affect stakeholders' perceptions of corporate greenwashing. Vries et al. (2015) find that stakeholders often regard company communications about environmental issues as more rhetorical than real. People may be suspicious of the truthfulness of companies' environmental claims and may speculate about the subtle purposes (Forehand & Grier, 2003; Vries et al., 2015; Yoon et al., 2006). These findings highlight the need for companies to be cautious in disclosing their environmental strategies and activities. Corporate environmental initiatives are certainly appreciated by stakeholders, although they can be highly self-defeating if they should arouse suspicions of corporate greenwashing. Furthermore, it has been shown that, under certain circumstances, positive environmental disclosures have successfully offset the negative effects of liability exposures in people's minds (Cho et al., 2009; Milne & Patten, 2002). This phenomenon frequently occurs when companies engage in purely symbolic actions to signal to stakeholders their values and refer to the environment and green issues in a misleading way, choosing to engage in "green talk" without a "green walk" (Brunton, Eweje, & Taskin, 2017; Ramus & Montiel, 2005). Such firms take advantage of the natural information asymmetry between the signaller and the receiver. Signalling theory is useful in analysing how parties that have access to different information interpret signals (Connelly et al., 2011) and to study the distortive effect of greenwashing (Seele & Gatti, 2017).

Starting from the assumption that the intention of companies is to create effective and efficient signals for the different targets of reference, we argue that different types of communication (e.g., different strategies behind the labels, sustainability reports, institutional communications, and strategic behaviours) resulting from different approaches and strategic decisions produce different levels of greenwashing.

Each kind of greenwashing, which is intended as an intentionally misleading environmental communication, produces different reactions and responses from stakeholders (Collison, Lorraine, & Power, 2003). Some approaches can receive nonsignificant responses, but others can lead to reputation problems, scandals, protests, boycotts, and so forth. Previous literature (see the top of the paragraph) about misleading environmental communication and greenwashing has studied the phenomenon and informed us about findings that take into consideration only two areas of greenwashing (the corporate level and product level). Through the careful study of the literature on the issue, and by taking into consideration the reading keys that legitimacy theory and signalling theory give us, we aim to introduce two new misleading environmental communication levels to try to better classify the types of communications related to greenwashing. We suggest that there could be four main levels of greenwashing, which are characterised by specific goals and communication procedures: the *corporate* level, *strategic* level, *dark* level, and *product* level.

Corporate-level greenwashing concerns misleading environmental communication about data and aspects related to the actual firm's image and reputation. This level embodies a static dimension (i.e., the company name and logo, vision, standard adherence, and corporate certification).

Strategic-level greenwashing concerns a misleading environmental communication concerning aspects related to the future firm's strategies (i.e., strategic public communication, corporate medium-long-term goals, strategic plan for improvement or implementation of technology/processes, report communication, and targeted extraordinary operations).

Dark-level greenwashing concerns a misleading environmental communication finalised to hidden illegal activities (i.e., money laundering, criminal and/or mafia collusion, corruption, and investments with hidden aims).

Product-level greenwashing concerns a misleading environmental communication concerning some specific features of a product or a family of products (i.e., label, targeted advertising, packaging, and product certifications).

The four levels of greenwashing are strictly connected to each other by a set of business processes and in the real context in which companies operate and stakeholders receive their communications, but we are interested in and have focused on the final step of the environmental communication process when the corporate signal arrives at the stakeholders with precise and distinct characteristics. Based on this set of distinctive signal characteristics, we have distinguished the four greenwashing levels explained above.

To establish whether the levels exist in the real world and in the everyday experience of stakeholders and whether there are significant differences among them, we test the different influences of these distinct levels on stakeholder perceptions of corporate environmental responsibility and corporate greenwashing and measure different stakeholder reactions to an environmental scandal at each level. We want to understand if the experiment will show significant differences in the perceptions and reactions of stakeholders depending on the level of greenwashing to which the participants will be assigned: the presence of significant differences would give us a first but valid element confirming the proposed existence of the distinct levels of communication.

According to the theoretical framework, we have developed four hypotheses to be tested.

> H1. A misleading communication belonging to different levels of greenwashing will have a significantly different influence on stakeholder perceptions of corporate environmental responsibility.

Previous research highlights the role of disclosure content (Patten & Crampton, 2003) and the presentation of that content (Cho et al., 2009) in gaining legitimation and improving stakeholder perceptions

of a company's social and environmental responsibility. Belonging to a typology of greenwashing and having certain communicational characteristics is closely related to disclosure content and presentation. We expect that the four main levels of greenwashing will have different influences on the perceptions of environmental responsibility.

> H2. A misleading communication belonging to different levels of greenwashing will have a significantly different influence on stakeholder perceptions of corporate greenwashing.

The characteristics of communication about investments and commitments towards environmental protection and environmental sustainability have an important and significant influence on the perceptions of corporate greenwashing (Vries et al., 2015). The motives behind investments and commitments, as well as the type of activity and corporate core business, are closely related to the perceptions of greenwashing (Vries et al., 2015). Further, belonging to different levels of greenwashing may have an influence on it.

> H3. A misleading communication belonging to different levels of greenwashing will have a significantly different influence on stakeholder reactions to an environmental scandal.

Currently, the level of attention towards corporate environmental impacts and commitments is very high, and environmental scandals are a topical issue (Siano et al., 2017). Many studies have focused on the effects of stakeholder discovery of greenwashing; some have highlighted the effects on financial performance (Du, 2015; Testa, Miroshnychenko, Barontini, & Frey, 2018; Walker & Wan, 2012), whereas others have examined the impact on trust (Dekhili & Achabou, 2013; Perrini, Castaldo, Misani, & Tencati, 2010) and loyalty (Guo et al., 2017). We expect that the type of communication and the level of greenwashing will significantly affect stakeholder reactions to an environmental scandal relating to a greenwashing discovery.

> H4. The environmental sensitivity of the industry will amplify the influence of different levels of greenwashing.

It is widely known that the industry is an extremely important aspect in investigating nonfinancial disclosures, precise environmental disclosures, and corporate and social responsibility (CSR) practices. Especially in the case of firms operating in environmentally sensitive industries (ESIs), it is necessary to identify the influence of the industry on stakeholder perceptions (Cho, Patten, & Roberts, 2006; Patten, 2002). ESI firms with poor environmental performance may engage in misleading environmental communication to gain legitimacy, counter suspicions of negative environmental influence, and improve corporate perception and trust (Cho et al., 2009). In this research, we hypothesise that belonging to an ESI may widen the influence of each level of greenwashing on stakeholder perceptions of CSR and greenwashing, amplifying reactions to an environmental scandal.

The four hypotheses and the relationship among the constructs are summarised and shown in Figure 1.

3 | METHODOLOGY

To verify the different types of misleading communications, the influence on stakeholders, the reactions of stakeholders, and the resulting effects on corporate legitimacy and reputation, we conducted an experiment using a four-by-two between-subjects design. To reach our aim, we have developed an experiment based on fictitious companies with defined characteristics. We have also developed a series of situations, giving the participants all the background information and

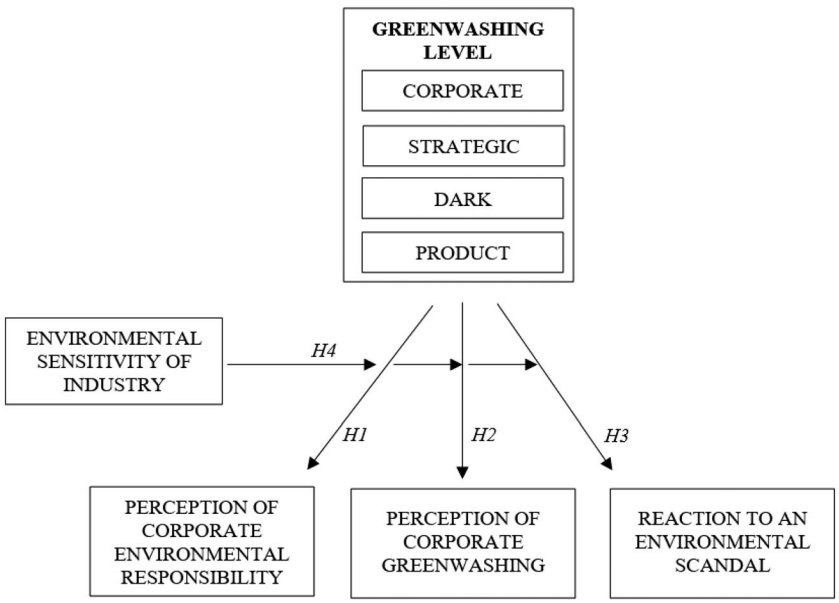

FIGURE 1 Experimental model

details necessary to understand and judge the different types of misleading communications.

This section details the participants, the experimental task, the experimental procedures, and the operationalisation of the variables.

3.1 | Participants

The participants in this research work were undergraduate university students from the same country. This group was selected for testing our hypotheses mainly on the assumption that students, as young people, are generally aware of and interested in environmental issues and are usually well informed, especially via the Web, about recent events, scandals, and official investigations (Aji & Sutikno, 2015; Besel et al., 2017; Cho et al., 2009; Leung & Chan, 2006; McKnight, Choudhury, & Kacmar, 2002). Furthermore, as frequent and expert users of the Web, students are particularly affected by true and false environmental communications (Nyilasy et al., 2014). The use of a sample composed of students is also in line with previous experiment-based studies in this field. In particular, Cho et al. (2009) conducted an experiment on a final sample of 102 students aiming to determine whether the medium of presentation of corporate social and environmental disclosure has an impact on user trust in such disclosure and to examine the effect of media richness on user perception of corporate social and environmental responsibility (Cho et al., 2009). Nyilasy et al. (2014) aimed to investigate the interactive consumer effects of green advertising and corporate environmental performance on brand attitudes and purchase intention in a study of 302 participants. Vries et al. (2015) examined when and why people might respond negatively to energy companies that engage in CSR activities in the environmental domain and conducted three experiments in which 79, 57, and 58 students took part, respectively. In line with the number of students involved in these studies, and with regard to the number of students assigned to each experimental task level, our sample numbered 201 students.

None of these students had any basic or advanced knowledge (acquired during their university studies) about the CSR field of study and/or greenwashing issue. The students took part voluntarily in the experiment and received no credits, gifts, or payments. The students were informed that the experiment would take approximately 15 min to complete, that participation was purely voluntary, and that all the information collected would be kept anonymous and the analyses would only be on an aggregate level. The request to make a good faith effort to complete the questionnaire was set as a condition for participation.

In the first phase, 54 students took part in a pilot test, and at the end, we made minor changes to the wording of some of the items of the questionnaire. In the main phase, a total of 147 participants completed the experiment, but 19 were eliminated because they failed the manipulation check. These students did not perceive the correct level of analysis of greenwashing (corporate, strategic, dark, and product) or whether the classification of the industry was environmentally sensitive (ESI) or not environmentally sensitive (non-ESI). The final sample thus consisted of 128 usable surveys.

The gender distribution of the participants was balanced. Most participants were female (53%) and 24 years old or younger (77%) (Table 1). The gender data were the subject of a specific statistical analysis in order to evaluate whether and to what extent gender affects the results (see Section 4). The participants' attitudes towards social and environmental performance were specifically evaluated in the survey using a 7-point Likert scale. The average score expressed on this statement was 4.9.

3.2 | Experimental task and procedures

The experimental task aims to evaluate reactions to specific situations and any subsequent changes in the perception of reputation and corporate legitimacy. This task has been carried out by using both visual imagery and firms' verbal rhetoric. Previous studies (McQuarrie & Mick, 2003) suggested that visual imagery is more attention grabbing, elicits richer inferences, and is more pleasurable and convincing than verbal statements. Nevertheless, little attention has been paid by scholars to the role of visual imagery and rhetoric in shaping green communications and messaging (Lyon & Montgomery, 2015). To prevent a distortion of the results due to pre-existing corporate or brand perceptions (Aggarwal, 2004; Wagner, Lutz, & Weitz, 2009), we used fictitious companies but realistic typologies of communication to test our hypotheses. To conceal the real aim of the experiment, the participants were told that the purpose of the study was an experiment about effective marketing communication strategies about social issues.

The experiment was followed by a survey consisting of 15 items; 10 of these are based on a Likert scale (1–7). In particular:

- To analyse the "perceptions of corporate environmental responsibility" (Cho et al., 2009), we proposed two statements:

1. *Based on what you have seen, you perceive concrete attention and responsibility towards environmental issues by the company.*
2. *The presence of an external certification or the adherence to a recognised standard confirms or increases your trust in the company.*

TABLE 1 Descriptive data for the 128 participants providing usable responses

Demographic data	Sample (%)
Age	
24 or younger	77
25–29	14
30 or older	9
Gender	
Male	47
Female	53

- To analyse the "perceptions of corporate greenwashing" (Vries et al., 2015), we proposed three statements:

3. *The company attempted to enhance its reputation by presenting itself as environmentally aware.*
4. *The company has hidden intentions and interests.*
5. *The company wants to appear more environmentally aware than it actually is.*

- To analyse the "reactions to an environmental scandal," we proposed four statements:

6. *You have lost trust in the company after what you have discovered.*
7. *Even if you had more information about the company about whether you can trust it, you would not change your opinion about it.*
8. *In the future, you will not re-evaluate the company, even if there are no other scandals or disappointing discoveries.*
9. *In the future, you will avoid the company.*

The other questions concern manipulation checks and personal information (age, sex, and attention to corporate social and environmental performance).

The participants were divided into eight different classes, each of which concerned a different experimental set. Each participant viewed and completed only one set. Starting from the four different levels of greenwashing proposed in the previous section (corporate, strategic, dark, and product) and the two industry typologies (ESI or non-ESI), we have identified and tested eight conditions:

1. Corporate level (ESI);
2. Corporate level (non-ESI);
3. Strategic level (ESI);
4. Strategic level (non-ESI);
5. Dark level (ESI);
6. Dark level (non-ESI);
7. Product level (ESI); and
8. Product level (non-ESI).

To contemporaneously measure perceptions of corporate environmental responsibility (Variable 1) and corporate greenwashing (Variable 2), the experiment focused on the four levels of greenwashing and ESI/non-ESI companies (therefore, companies that do or do not belong to sectors with a high environmental influence, such as chemical, energy, waste, and extraction).

The experiment took place in three steps. In the first step, we presented the company and its declared commitment to the environment. A PowerPoint presentation supplied visual information about the company and its commitment to the environment, and we also provided important information about the company for each experimental condition (see Appendix A for more details on the information given to the participants). Depending on the assigned level, the participants received and read information (in addition to an explanatory and meaningful image) on the company's environmental commitments, which were communicated to them using different methods, signals, and procedures. For example, for the corporate level, an environmental communication was made through the company name and logo; for the strategic level, environmental objectives included in the long-term corporate strategy were used. For the dark level, corporate practices and contexts commonly recognised as connected to crime or the eco-mafia (construction and waste) were used; for the product level, we used advertising communications concerning a single product in common use.

In the first step, the specific sector in which the company operates was declared to the participants, and background information was provided. Each group was shown an image concerning, alternatively, the company logo, a specific label, a product, or advertising campaign. Key and easily recognisable sectors (e.g., food and chemicals) have been used to characterise companies belonging to ESI or non-ESI experimental sets. At the end of the first step, the participants were asked to complete the first section of the questionnaire based on the images displayed and the information given. In the next phase, the participants were made aware of serious facts that led to the involvement of the same company in a serious environmental scandal. Finally, the participants were invited to complete the second section of the questionnaire. To measure the reactions to an environmental scandal (Variable 3), for each company presented, we provided information on its involvement in a scandal (e.g., the use of environmentally toxic paints and adhesives, release of harmful fumes in the air, use of illegal landfills, and use of public funds related to the environment for the purchase of weapons and drugs). The scandals presented to the participants always regarded the violation or nonrespect of an environmental commitment made and declared by the company (and presented in the information read in the first step) and, in addition, a further bad environmental practice, which was not directly related to the commitments made. In the last step, the participants completed the section on the manipulation check, demographic data, and information on attitudes towards CSR performance.

Similar to previous studies (Alewine, 2010; Cho et al., 2009; Falk & Heckman, 2009), we used a four-by-two between-subjects design experiment, manipulating the levels of greenwashing to understand the effects on stakeholders of the various levels of greenwashing implementation (the perception of corporate environmental responsibility and corporate greenwashing: Dependent Variables 1 and 2) and to analyse how the perceptions and actions of stakeholders change after a clear case of greenwashing (the reaction to an environmental scandal: Dependent Variable 3).

3.3 | Measurement of variables

This study is based on three primary dependent variables: perceptions of corporate environmental responsibility, perceptions of corporate greenwashing, and reactions to an environmental scandal. The items

used to measure the variables are two items for the perceptions of corporate environmental responsibility, three items for the perceptions of corporate greenwashing, and four items for the reactions to an environmental scandal. All the items were measured on a 7-point Likert-type scale with *completely false* and *completely true* as the anchors.

The first item used to measure perception of corporate environmental responsibility is based on Cho et al. (2009). We included a second item concerning environmental certification and standards to measure a further type of communication in the perception of corporate environmental responsibility. Previous studies (Berrone, Fosfuri, & Gelabert, 2017) demonstrated a close relationship between environmental legitimacy and environmental actions, such as environmental patents, environmental pay policies, and environmental trademarks.

In accordance with Vries et al. (2015), we measured the perception of corporate greenwashing using three items via a 7-point Likert-type scale. These items evaluate the perceptions of the firm's hidden interests and its desire to appear more environmentally friendly to gain a more positive reputation and legitimacy.

To measure stakeholders' reactions to an environmental scandal, we considered four different aspects of their possible reaction to an environmental/green scandal: the loss of trust, the possibility of changing their opinion on the company scandal, the possibility of reassessing the company in the future if it proves to be behaving correctly, and, finally, the intention to boycott the company. For the variable reaction to scandals, because it has not yet been validated by the extant literature, we evaluated if the questions load properly onto this factor. The four items are shown as a valid scale with a Cronbach's α of .7684.

Table 2 shows descriptive statistics for participants' mean responses for each of the nine items. The first two items (perception of corporate environmental responsibility) differed at a statistically significant level between greenwashing level conditions ($p < .01$ and $p < .05$). A difference at a statistically significant level ($p < .01$) also occurs in the fifth item (perceptions of corporate greenwashing), and two of the three items of this construct have a statistically significant difference between the ESI/non-ESI conditions. All four items measuring reaction to an environmental scandal differed at a statistically significant level between greenwashing level conditions and/or ESI/non-ESI conditions. (The value of p is shown below the table.)

4 | RESULTS AND DISCUSSION

4.1 | H1: Influence on stakeholder perceptions of corporate environmental responsibility

Table 3 shows descriptive statistics for the influence on stakeholder perceptions of corporate environmental responsibility for the four levels of greenwashing in the ESI and non-ESI conditions. Univariate tests show statistically significant differences ($p < .01$) for the corporate greenwashing level and dark greenwashing level, regardless of being ESI/non-ESI. The results show that company-level greenwashing is characterised by the highest degree of perceptions of corporate environmental responsibility whereas the level of darkness demonstrates the lowest.

The analysis of variance (ANOVA), presented in Table 4, indicates that the level of greenwashing related to stakeholders' perceptions of corporate environmental responsibility is again statistically significant ($p < .01$). The differences in perceptions of corporate environmental responsibility between the levels are depicted in Figure 2, which states the mean values of this variable for each experimental condition.

TABLE 2 Dependent variable scale items

Items	Mean	*SD*	Min	Max
Dependent Variable 1: Perceptions of corporate environmental responsibility				
Q1: I perceive a concrete attention and responsibility towards environmental issues	5.38	1.06**	1	7
Q2: Certification or adherence to a standard confirms or increases my trust	5.86	0.99*	2	7
Dependent Variable 2: Perceptions of corporate greenwashing				
Q3: The company presents itself as environmentally aware in order to improve its reputation	6.05	0.83	3	7
Q4: The company has hidden intentions and interests	4.28	1.14***,‡	1	7
Q5: The company presents itself as more environmentally aware than it actually is	4.62	1.21*,***	1	7
Dependent Variable 3: Reactions to an environmental scandal				
Q6: I have lost trust in the company after the environmental scandal	6.31	0.91†	3	7
Q7: Even if I had more information, I would not change my opinion on the company	4.87	1.56*,§	1	7
Q8: I will no longer re-evaluate the company, even if its behaviour seems correct	4.49	1.53*	1	7
Q9: In the future, I will avoid the company	5.10	1.31*,***	1	7

Abbreviation: *SD*, standard deviation.

*$p < .01$ (Significantly different between levels). **$p < .05$ (Significantly different between levels). ***$p < .05$ (Significantly different between industries).

†$p < .1$ (Significantly different between industries). ‡$p < .05$ (Significantly different between gender—female value is higher).

§$p < .01$ (Significantly different between gender—female value is higher).

TABLE 3 Descriptive statistics of "perceptions of corporate environmental responsibility" (Variable 1)

	ESI			non-ESI			Row means (level)		
Level	*N*	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*
Product	20	5.40	1.02	20	5.60	0.77	40	5.50	0.90
Corporate	15	6.03	0.48	13	6.04	0.48	28	6.04	0.47***
Strategic	19	5.74	0.82	13	5.73	0.53	32	5.73	0.71
Dark	16	5.63	0.69	12	4.75	1.36	28	5.25	1.10***
Column means (industry)	70	5.68	0.82	58	5.55	0.93	128	5.62	0.87

Abbreviations: ESI, environmentally sensitive industry; *SD*, standard deviation.

***$p < .01$.

TABLE 4 Results of the analysis of variance on "perceptions of corporate environmental responsibility" (Variable 2)

ANOVA	Sum of squares	Mean square	*F* statistic	Statistical significance
Overall model	15.32	2.19	3.28	0.0032
Industry	0.88	0.88	1.32	0.2529
Level	10.91	3.63	5.45	0.0015
Industry * Level	5.14	1.71	2.57	0.0576

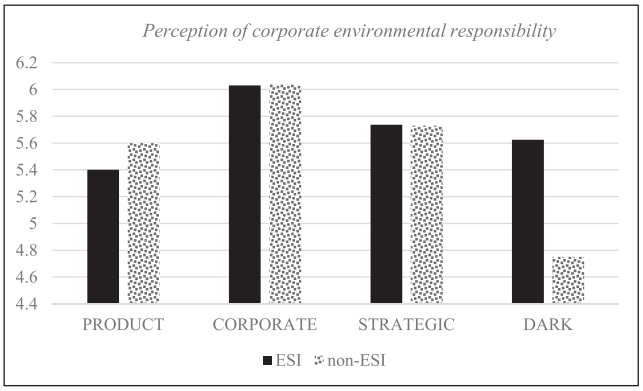

FIGURE 2 Histogram of "perception of corporate environmental responsibility": mean values identified in experimental condition. ESI, environmentally sensitive industry

H1 is supported. Misleading company communications have a significantly different influence on stakeholder perceptions of corporate environmental responsibility depending on which level they belong to. Corporate-type communications bring a higher level of responsibility perception and thus more easily increase legitimacy and reputation. Communications in the context of industries and activities often linked to organised crime and the mafia struggle to reach a high level of perception of corporate environmental responsibility, and this has substantial effects on corporate legitimacy and reputation. In the experiment set, the mafia and criminal activities are hidden and not explicitly declared so that the participants do not know if the company is linked to organised crime. The signal sent out by the company acts in a different way on stakeholders depending on the level of greenwashing it belongs to. For each level, the signal has distinctive characteristics, and the analysis reveals that these are, in effect, received and considered by stakeholders.

4.2 | H2: Influence on stakeholder perceptions of corporate greenwashing

Table 5 shows descriptive statistics for the second dependent variable by experimental conditions (greenwashing levels, ESI and non-ESI). The variable's mean value shows statistically significant differences ($p < .05$) for dark greenwashing levels regardless of whether they are

TABLE 5 Descriptive statistics of the "perceptions of corporate greenwashing" variable

	ESI			non-ESI			Row means (level)		
Level	*n*	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*
Product	20	5.30	0.74	20	4.65	0.90	40	4.97	0.88
Corporate	15	4.98	0.75	13	4.69	0.63	28	4.85	0.70
Strategic	19	4.96	0.59	13	4.77	0.79	32	4.88	0.68
Dark	16	5.25	0.66	12	5.25	0.53	28	5.25	0.60**
Column means (industry)	70	5.13	0.69**	58	4.81	0.77	128	4.98	0.74

Abbreviations: ESI, environmentally sensitive industry; *SD*, standard deviation.

**$p < .05$.

ESI or non-ESI. This level is characterised by a higher perception of corporate greenwashing.

The ANOVA presented in Table 6 shows the importance and significance of the ESI/non-ESI condition ($p < .05$) related to stakeholder perceptions of corporate greenwashing. The differences between the levels highlighted by the statistical analysis are clearly shown in Figure 3 but only for non-ESI conditions (see below for a discussion). The non-ESI mean values for product and dark levels are the anchors, with the lowest and the highest levels, respectively.

These results support H2. Depending on the level of greenwashing, a company's misleading environmental communications have significantly different influences on stakeholders' perceptions of greenwashing. This result is particularly strong if the company operates in a context of criminal and mafia activities. Corporate- and strategic-level communications do not create a concrete perception of a misleading communication (greenwashing) in the stakeholders' minds. In line with the results for H1, these two levels result in an increase in reputation and trust compared to the perception of greenwashing. The perception of corporate greenwashing is higher when the signal is sent by a company operating in an industrial context and activities usually related to organised crime and the mafia. This result can feed into the mind of the stakeholder suspicions and preconceptions about the company being assessed. In addition, in this case, the signal acts in a different way on stakeholders depending on which greenwashing level it belongs to. This result can feed suspicions and preconceptions among stakeholders about the firm they are assessing. Furthermore, the signal acts differently on stakeholders depending on which of the different levels of greenwashing is considered. This result is particularly true for the dark level.

TABLE 6 Results of the analysis of variance on the "perceptions of corporate greenwashing" variable

ANOVA	Sum of squares	Mean square	*F* statistic	Statistical significance
Overall model	7.92	1.13	2.19	0.0398
Industry	2.46	2.46	4.77	0.0309
Level	2.98	0.99	1.92	0.1299
Industry * Level	1.92	0.64	1.24	0.2995

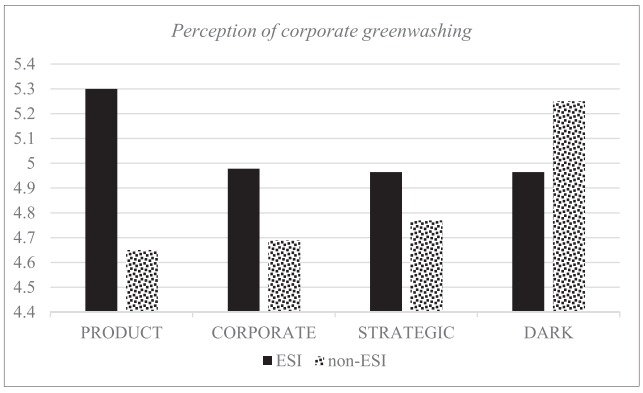

FIGURE 3 Histogram of "perception of corporate greenwashing": mean values identified in experimental condition. ESI, environmentally sensitive industry

4.3 | H3: Influence on stakeholder reactions to an environmental scandal

Table 7 reports descriptive statistics of the third dependent variable by experimental condition (greenwashing levels, ESI or non-ESI). The analysis performed on the variable's mean values shows statistically significant differences ($p < .01$) for corporate greenwashing levels and dark greenwashing levels regardless of being whether the firm is in an ESI or non-ESI (similar to the first variable in Table 3). The corporate-level results are characterised by a lower level of stakeholders' reactions to environmental scandal, whereas the dark level is characterised by a higher level.

Table 8 presents the ANOVA in which the level of greenwashing is statistically significantly ($p < .01$) related to stakeholder reactions to an environmental scandal related to greenwashing. In Figure 4, the differences between the reactions of the different levels are clear. The mean values for the corporate level are related to a low level of reaction to a greenwashing scandal. However, the dark level shows a very high level of stakeholder reactions.

H3 is also supported. For each condition tested, the experimental set showed the participants a serious environmental scandal. The characteristics of the firm's signals, the legitimacy obtained, and the

TABLE 7 Descriptive statistics of the "reactions to an environmental scandal" variable

	ESI			non-ESI			Row means (level)		
Level	*n*	Mean	*SD*	*n*	Mean	*SD*	*n*	Mean	*SD*
Product	20	5.20	1.15	20	5.14	0.93	40	5.17	1.03
Corporate	15	4.80	1.09	13	4.59	0.77	28	4.71	0.95***
Strategic	19	5.47	0.82	13	4.69	1.16	32	5.16	1.03
Dark	16	5.83	0.97	12	5.69	0.87	28	5.77	0.91***
Column means (industry)	70	5.33	1.06*	58	5.03	1.00	128	5.19	1.04

*$p < .1$. ***$p < .01$.

TABLE 8 Results of the analysis of variance on the "reactions to an environmental scandal" variable

ANOVA	Sum of squares	Mean square	*F* statistic	Statistical significance
Overall model	21.15	3.02	3.12	0.0046
Industry	2.72	2.72	2.81	0.0963
Level	15.91	5.30	5.48	0.0015
Industry * Level	2.59	0.86	0.89	0.4485

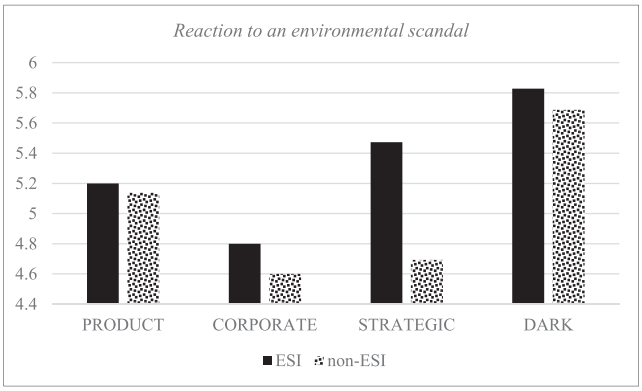

FIGURE 4 Histogram of "reaction to an environmental scandal": mean values identified in experimental condition. ESI, environmentally sensitive industry

suspicion of greenwashing all led to different intensities of stakeholder reactions. There are significantly different influences on stakeholders' reactions to an environmental scandal involving greenwashing depending on which level the signal belongs to. Depending on the level of reputation and legitimacy obtained with the level of misleading communication and possible suspicions of greenwashing, the corporate level is related to a low level of reaction to scandal. Signals belonging to the dark level lead to a high level of stakeholder reactions, which may be related to the severity of the consequences of the misleading communications (and the related hidden activity) as well as a moral and legal point of view. In the case of scandal, we explicated and stated the presence of the mafia and organised crime in the experiment set.

4.4 | H4: Role of ESIs in amplifying influences of different levels of greenwashing

Regarding the role of the environmental sensitivity of an industry and its moderator or amplifier effect on the influences of different levels of greenwashing, Table 5 (perceptions of corporate greenwashing) and Table 7 (reactions to an environmental scandal) show statistically significant differences ($p < .05$ and $p < .1$) for the ESI and non-ESI conditions. The ESI experimental conditions are characterised by higher stakeholder perceptions of corporate greenwashing and reactions to an environmental scandal. Moreover, participants who evaluated the situation of an ESI company reported a stronger reaction. Regarding the ANOVA analyses, the findings highlight that the ESI condition is statistically significantly ($p < .05$ and $p < .1$) related to perceptions of corporate greenwashing (Table 6) and to stakeholder reactions to an environmental scandal involving greenwashing (Table 8). In the ANOVA findings related to perceptions of corporate environmental responsibility, there is also a statistically significant ($p < .1$) effect on the interaction between belonging to an ESI and greenwashing level conditions. Figure 4 also clearly shows the role of belonging to an ESI on the influence of different levels of misleading communication. The environmental sensitivity of the industry amplifies the influence of different greenwashing levels on stakeholder reactions to an environmental scandal, which is interesting and certainly deepens the mirror role of the ESI/non-ESI condition for product level and dark level, respectively, as shown in Figure 3 regarding perceptions of corporate greenwashing. The histograms show a clear and strong amplifier role of belonging to an ESI for environmental communications and signal belonging to the product area of greenwashing but also an amplifier role of belonging to a non-ESI for communications related to the dark area of greenwashing.

Our research findings indicate that stakeholders (represented by undergraduate students in our study), when faced with environmental communications related to a single product (i.e., labels, advertising, and packaging), seems to be more sensitive and receptive about which type of industry the company belongs to, especially when the company belongs to a high environmental impact industry. In contrast, when stakeholders are faced with the environmental communications of a company belonging to an industry typically related to organised crime, the moderator/amplifier role of the ESI/non-ESI condition is confused and not directly clear and determinable. This result suggests that, when stakeholders are faced with signals belonging to the "dark area of greenwashing" in an ESI condition, their attention seems to be mostly oriented on environmental aspects rather than on the criminal aspects of the communication and the company. In contrast, in the other condition (non-ESI), stakeholders' attention falls entirely on the crime aspect. H4 is significantly confirmed. When a scandal occurs and the greenwashing practice is discovered, stakeholders' reactions are stronger if the firm operates in an environmentally sensitive industry. This suggests that some categories of stakeholders may be more sensitive to environmental damage when there is greater potential danger. Public awareness and desire for environmental protection are therefore higher in ESIs.

4.5 | Additional analysis on the role of gender

An additional statistical analysis was made on the role of gender and its possible influence on the results of each research hypothesis, and thus on the perceptions identified on the entire sample. In the first analysis of descriptive statistics for participants' mean responses for each of the nine items (Table 2), the fourth item related to the perception of corporate greenwashing ("The company has hidden intentions and interests") differed at a statistically significant level between genders ($p < .05$). Female participants reported higher average responses than male participants; the perception of greenwashing was higher by females. There was another statistically significant difference ($p < .01$) in the seventh item related to the reactions to an environmental scandal. ("Even if I had more information, I would not change my opinion on the company"). Female participants again reported higher average responses than male participants, and the perception of greenwashing was higher by females. Here too, the reaction to an environmental scandal is more intense for the female component of the sample. In the specific analysis of variables in "perceptions of corporate environmental responsibility," gender has a direct and

significant influence. The statistically significant differences ($p < .01$) for the corporate greenwashing level and dark greenwashing level shown by univariate tests (Table 3) are mainly caused by the male section of the participants, and the female component of the sample by itself shows no significant differences. On the other hand, it is the female component that determines the significance of the overall result in the perception of environmental responsibility among all four levels of greenwashing (ANOVA, Table 4). In the ANOVA analysis (Table 6), which measures, among other things, the effect that belonging to an ESI has on the "perceptions of corporate greenwashing," the significant result is determined by the male component of the sample, and the female component is not influenced by ESI. In the ANOVA analysis concerning the "reactions to an environmental scandal" (Table 8), the significant influence of belonging to a specific level of greenwashing is caused by the female component of the sample. Here, females were found to be influenced by the level of greenwashing of the communication in their reaction to an environmental scandal.

Summarizing and concluding, there are certain areas of the analysis on which gender has a significant effect, and where male and female yield different results. However, the additional statistical analyses shows that gender does not significantly influence the overall perception of environmental responsibility and corporate greenwashing and does not overall affect reaction to scandal. Gender is thus an important element in perceptions and reactions to environmental responsibility and corporate greenwashing and requires further research in the future. The preliminary results presented here, however, suggest that it is not decisive.

5 | CONCLUSIONS

The purpose of this study was to examine the effects on stakeholders of the different levels of greenwashing, understanding if and how stakeholders' perceptions and actions change after an assessed case of greenwashing.

Our research findings, based on previous studies highlighting the characteristics of communication (Vries et al., 2015) and the role of information disclosure (Patten & Crampton, 2003) and presentation (Cho et al., 2009) in gaining legitimation and improving stakeholder perceptions, indicate that different levels of greenwashing have significantly different influences on stakeholders' perceptions of corporate environmental responsibility and stakeholders' reactions to environmental scandals. The findings also highlight that belonging to an ESI amplifies the influence of different greenwashing levels on stakeholders' perceptions of and reactions to environmental scandals. Firms reach different goals by implementing specific communication strategies related to specific organisational and decision-making processes. Industry environmental sensitivity must be carefully considered in all communicational aspects because of its key role in amplifying the influence of greenwashing levels on stakeholders' reactions.

The results of our analysis may be useful for companies in planning and implementing communication processes to avoid suspicion and loss of legitimacy. These results may also help firms understand the consequences that symbolic communication strategies can have on stakeholders and on corporate legitimacy overall. Stakeholders may also find the results of help in understanding greenwashing and the actions and strategies it uses. Non-governmental organizations (NGOs) will find insight for further investigations and actions and to better address their attention, resources, and time. Both stakeholders and NGOs will gain a better understanding of the different types of greenwashing and be better able to take account of the main effects of environmental communications on the development of perceptions and suspicions. Finally, the study will enrich the academic study of greenwashing, misleading corporate communications and environmental responsibility, and it fills a gap in the literature about the distinction between and subdivision of greenwashing practices at different levels and relating to different effects.

Similar to all empirical studies, our investigation is subject to certain limitations.

The first limitation concerns the internal and external validity of our research design. Although the design has high internal validity, with two dependent variables being measured by previously tested confirmed items, the experimental design also includes four new items that measure reactions to an environmental scandal construct. To address the problem of external validity, we used fictitious companies but a realistic typology of communication for each greenwashing level, as well as realistic visual imagery and environmental scandals based on real-world events.

The second limitation concerns the typology of the experiment participants who are exclusively undergraduate students. However, as young people, these students are aware of and interested in environmental issues and are usually well informed (especially via the Internet) about recent events, scandals, and official investigations. Additionally, being frequent users of the Web, these students are particularly affected by (true or false) environmental communications.

The third limitation of this research is that it is not possible to verify the actions and behaviours of the participants after the experiment or to assess whether it subsequently influenced their perceptions or intentions. Having the intention to do something does not automatically mean that it will be done.

It would of course be appropriate for future research to empirically validate the results obtained here and especially to confirm the existence of the four dimensions of greenwashing theorised here.

Future research is encouraged to refine the different levels of classification of greenwashing, enriching the classifications proposed with other possible levels of misleading environmental communication. Research would also be useful to test the levels theorised in other countries, using other categories of stakeholders and a sample more varied in age and educational level. It would also be interesting to investigate the possible role of NGOs in identifying types of greenwashing and moderating or amplifying its influence on stakeholders.

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APPENDIX A

PROCEDURES DETAILS

A PowerPoint presentation supplied visual information about the company and its commitment to the environment, and we also provided important information about the company for each experimental condition:

- Corporate level:
  - (ESI)

Since the beginning of the year, the GreenTech company has used a new company logo. The home page of the company's website, in the "About Us" section, reads, "We are a historic company in the production of electrical power plants and are strongly predicted to have a more sustainable and environmentally friendly future. In our processes, we adopt all the necessary precautions to avoid any waste of energy and to produce the least amount of waste materials." Over the last 5 years, the company has published a Sustainability Report in which it reports its environmental commitments and impacts. In addition, in recent years, EMAS certification on environmental performance has been obtained.

- (Non-ESI)

Since the beginning of the year, the GreenTaste company has used a new company logo. The home page of the company's website, in the "About Us" section, reads, "We are a historic company in the production of high-quality prepacked food, strongly predicted to have a more sustainable and environmentally friendly future. In our production and processes, we adopt all the necessary precautions to avoid any food and energy waste." Over the last 5 years, the company has published a Sustainability Report in which it reports its environmental commitments and impacts. In addition, in recent years, EMAS certification on environmental performance has been obtained.

- Strategic level:
  - (ESI)

The Sustainability Report of the company in the "Strategy, Sustainability and Future" section reads, "As a leading company in the oil extraction industry, by 2020, we want to trace a clear and concrete path towards sustainability and environmental respect. To do this, we will work to reduce our impact on the planet through the gradual introduction of technologies that reduce the risk of leaking oil into the sea, marine water filtration systems around the platforms in case of failure and CO2 emission control systems." Over the last 5 years, the company has published a Sustainability Report in which it reports its environmental commitments and impacts. In addition, in recent years, EMAS certification on environmental performance has been obtained.

- (Non-ESI)

The Sustainability Report of the company in the "Strategy, Sustainability and Future" section reads, "As a leading company in the beverage sector, by 2020, we want to trace a clear and concrete path towards sustainability and environmental respect. To do so, we will work to reduce our impact on the planet in the future: -20% use of water resources, +100% recyclable packaging and -50% use of chemical products in our agricultural supply chain." Over the last 5 years, the company has published a Sustainability Report in which it reports its environmental commitments and impacts. In addition, in recent years, EMAS certification on environmental performance has been obtained.

- Dark level:
  - (ESI)

In the town, the public tender for the collection of waste was won by the company WasteRecycle. The official document with which the company participated in the tender states, "With 10 years of experience in waste collection and disposal, we operate in many cities across the country, working to achieve the goals set by the local tenders and to ensure citizens a city without waste. These are our primary objectives: to collect all categories of waste separately in a timely manner, to use only 100% electric vehicles and to ensure the recovery and recycling of at least 90% of the waste collected." The company's long-term "zero waste" objective has enabled it to win the city's tender. The company is also ISO 14001 certified.

- (Non-ESI)

In the town, the contract for the construction of a new residential district was won by the company NewBuilding. The official document presented by the company reads, "With 10 years of experience in the construction industry, we operate in many towns in the country. Our aim is to achieve the conditions set by the contract and to

guarantee work of the highest quality. We guarantee seriousness, compliance with deadlines, use of quality and eco-compatible materials and the reclamation of the environment adjacent to the building site at the end of the works." The company is also certificated ISO 14001.

- Product level:
  - (ESI)

The line of detergents for industrial use designed and marketed by the company is produced with 100% biodegradable chemical compounds. Water used in the manufacture is purified. This line of detergents obtained Ecolabel certification for its low environmental impact.

  - (Non-ESI)

The new line of T-shirts of the company is made from exclusively recycled materials and uses only renewable energy sources for the entire industrial process. This line obtained Oeko-Tex certification (Confidence in Textiles) for environmental eco-compatibility.