water

MDPI

Article

Why European Entrepreneurs in the Water and Waste Management Sector Are Willing to Go beyond Environmental Legislation

Adrián Rabadán [1,*] and Francisco J. Sáez-Martínez [2]

[1] Higher Technical School of Agricultural and Forestry Engineering, University of Castilla-La Mancha, 02071 Albacete, Spain

[2] Faculty of Economics and Business Administration, University of Castilla-La Mancha, 02071 Albacete, Spain; Francisco.Saez@uclm.es

* Correspondence: adrian.rabadan@uclm.es; Tel.: +34-902-204-100(96250)x

Academic Editor: Sharon B. Megdal

Received: 17 January 2017; Accepted: 17 February 2017; Published: 23 February 2017

Abstract: Sustainability in the water sector in Europe is a major concern, and compliance with the current legislation alone does not seem to be enough to face major challenges like climate change or population growth and concentration. The greatest potential for improvement appears when companies decide to take a step forward and go beyond environmental legislation. This study focuses on the environmental responsibility (ER) of European small and medium-sized enterprises (SMEs) in the water and waste management sector and analyzes the drivers that lead these firms to the adoption of more sustainable practices. Our results show that up to 40% of European SMEs within this industry display environmental responsibility. Market pull has a low incidence in encouraging ER, while values and the strategic decisions of entrepreneurs seem decisive. Policy makers should prioritize subsidies over fiscal incentives because they show greater potential to promote the adoption of environmental responsibility among these firms.

Keywords: water sector; SMEs; environmental responsibility; drivers

1. Introduction

On 25 September 2015, the Conference of the United Nations identified 17 Sustainable Development Goals and adopted an agenda to encourage changes [1]. Of those defined goals, up to seven are directly related to the need to improve environmentally-friendly changes in water supply, sewerage, waste management and remediation. The importance of these changes appears crucial, then, for the compliance of our world goals for 2030.

According to UN data [1], at least 1.8 billion people globally use a contaminated source of drinking water, and more than 80% of wastewater resulting from human activities is directly discharged into rivers or the sea without adequate pollution removal. Regarding waste generation, in the European Union alone, 2.5 billion tons of waste were produced in 2012 [2], and numbers appear to increase every year as countries develop and world consumption rises [3]. The promotion of environmental compromises by enterprises operating in the sector is, therefore, essential.

Water management has been widely described as unsustainable in relation to ecologic, social and economic criteria [4,5], and more sustainable water management has been identified as one of the improvements that the water sector will have to face in the short term, as factors such as climate change, population growth and environmental awareness gain social and political attention and water becomes a key factor for development [6]. There are increasing public and legislative demands for water service providers to take action [7] by evaluating the "triple bottom line" and analyzing their responsibility and risks to people, the environment and financial benefits [4,5].

A sustainable water supply and wastewater management have been identified as major challenges, especially in megacities [8–10]. By 2030, the world is projected to have up to 41 mega-cities with 10 million inhabitants or more, concentrated mainly in developing countries [11]. This tendency to population concentration in urban settlements has become a constraint as sustainable solutions to water and waste management have proven to be more efficient in less densely populated areas [12]. Pilot projects to integrate water and waste management have been described to avoid the use of end-of-pipe methods by optimizing the uses of different qualities of wastewater with the aim of creating more eco-friendly cities by eliminating centralized sewerage systems [13].

Adequate investment is critical to ensure that physical assets are sufficient to deliver proper services [14]. Despite the importance of water and wastewater services, these investments are not always made [6], and studies conducted in various countries indicate that poor asset investment is a reality in most of them [15].

The sustainability of urban water management has attracted attention for decades [16–19], but few real changes have been made [18]. The implementation of changes to create greener water and wastewater management have attracted attention and proposals because the development of decentralized systems [20] or upgrading to integrated urban water systems [21,22] is thought to play a major role in urban water sustainability. The law does not require many of the proposed improvements in environmental sustainability in the sector [23], so analysis of the motivations that could lead companies to develop these upgrades has great relevance.

Usually, water resource management has relied on an engineering approach, and technological fixes have proven to be efficient in solving environmental problems, such as wastewater treatment. The situation has changed, though, as the environmental awareness of the public has increased [24], and end-of-pipe solutions provided by companies create controversy [4]. Traditional water management has been dominated by top-down technical solutions focused on water quality and supply [25], not dealing with management issues or public engagement [26]. Sustainability in water systems is not considered an endpoint, but is instead a process of continuous decisions that must incorporate social learning [27].

Additionally, public engagement is crucial in the transition towards sustainable water management. In decisions regarding water management, social learning processes have been proven to encourage practitioners in the development of more sustainable management practices [27,28]. Social learning is believed to have the power to change norms, procedures and actors that are involved in the decision-making process, thereby promoting the transition from sustainable ideas to facts [29].

Water and waste management is considered a shared responsibility of government authorities and businesses; however, it is difficult to determine where public responsibilities end and corporate responsibilities emerge [30].

Environmental policies have primarily concentrated on large firm performance due to the perception that large firms have a larger impact on climate change and resource depletion [31] and have paid little attention to small and medium-sized firms [32]. This is a misconception, because although the environmental impact of an individual SME may be relatively limited, the overall aggregate impact of such firms is sizable [33]. The sum of the environmental impacts of small and medium-sized enterprises (SMEs) outweighs the combined environmental impact of large firms, accounting for 70% of the world's industrial pollution [34] and approximately 64% of the pollution in Europe [35]. SMEs must play a vital role in facing environmental challenges [32].

Up to 98.8% of EU companies in the sector of water supply, sewerage, waste management and remediation are considered SMEs [2]. Their influence on the achievement of sustainability goals in this industry will have major importance. If such companies comply with current legislation, advances in the sustainability of the sector will be insufficient; the greatest potential appears when companies decide to take a step forward and go beyond environmental legislation, applying their own environmental responsibility (ER). The need for voluntary action by firms towards the protection and

preservation of water has been largely underestimated in the preference of coercion through policy intervention [36].

Therefore, following a recent call to study the pro-environmental attitudes of SME entrepreneurs [37], the present paper seeks to examine the environmental responsibility of European SMEs within the water and waste sector and to analyze the motivations that lead them to develop broader environmental management.

Hence, our research question is the following:

Which factors drive SMEs within the water sector to have environmentally responsible behavior?

The results of this paper will offer information about the sector's real situation regarding environmental sustainability and identify the drivers that promote environmentally-friendly practices in these firms. The identification of companies' motivations presents a significant advance by creating an opportunity to develop policies and incentives that could lead to stimulus for the environmental sustainability of the sector.

The paper is organized as follows: In the following section, we review the literature on ER. Section 3 addresses methodological issues. We then present the results and findings of our analysis and discuss the results. The final section presents conclusions and practical implications.

2. Theoretical Framework

2.1. Environmental Responsibility

Although political power and legislative changes can accelerate changes in the adoption of sustainability practices by SMEs [38], the adoption of voluntary environmental responsibility (ER) practices appears to be a powerful instrument to improve sustainability within companies. ER can be defined as "practices that benefit the environment [or mitigate the adverse impact of business on the environment] that go beyond that which companies are legally obliged to do" [39].

Larger companies are more likely to consider the environment in their management practices [31], and they are more proactively engaged in environmental strategies than SMEs because positive impacts on corporate image can benefit the companies' share prices and reputation with stakeholders, while SMEs rarely attract media attention [40]. However, the voluntary orientation of SMEs toward actions of environmental responsibility is related to an increase in the disclosure of those actions [41], so all companies, regardless of size, can benefit from environmental responsibility. ER can help firms gain a competitive advantage by enabling them to differentiate themselves from their competitors [42].

Companies' owners and managers generally show high levels of awareness and a strong and positive environmental outlook, but few firms implement sustainable environmental practices [31,43]. The development of green strategies in SMEs seems to require resources and skills that they may not have or require investments that they cannot afford [38]. Despite this, several positive features are linked to the development of environmental sustainability practices in SMEs: the opportunity to focus on specialized markets that present little interest for large companies [40], the creation of competitive advantage in some sectors [44] and an increase in export intensity [45], to name a few. Sustainability principles developing in the water and waste management sector should be viewed as a business opportunity for companies and not as a business constraint. Translating these principles into action is one of the challenges of this industry [5,6].

Although there is an increase in the related literature [46], there is still a lack of empirical studies about the drivers that affect environmental responsibility performance in SMEs [47] and especially in this industry.

2.2. Environmental Responsibility Drivers

There are four main drivers of ER among firms, according to the literature (see Figure 1). Among these drivers, the influence of consumer demand for greener products and services has been identified as a market pull towards environmental responsibility. These drivers' real influence on

firm performance has not been met with general agreement [34,38], although recent studies show that customers are now more willing to pay for products or services that have been produced in a more environmentally-conscious way [48,49]. Customer demand has been identified recently as an effective driver of environmental innovation in Irish companies [50], but information about other sectors in Europe is scarce [51–53].

Regulation and fiscal incentives have also been identified as effective drivers of environmental responsibility in companies because they create *regulatory push/pull* depending on the requirements and benefits of the implemented actions [43,54]. The Porter hypothesis [55] assumes that environmental regulation leads to a "win-win" situation in which pollution is reduced while firms increase their competitiveness. Some studies have confirmed that hypothesis and found an increase in productivity in companies that decided to implement environmentally-friendly practices [31]. Firms' response to public policy goes from defiance, to compliance, to voluntary engagement [36]. However, experience confirms that SMEs tend to comply with external pressures regarding environmental responsibility adaptation rather than adopting a proactive strategy [38], and regulation should be considered an important driver. Although a variety of factors positively influence voluntary environmental management, regulatory pressures are among the most important [56,57].

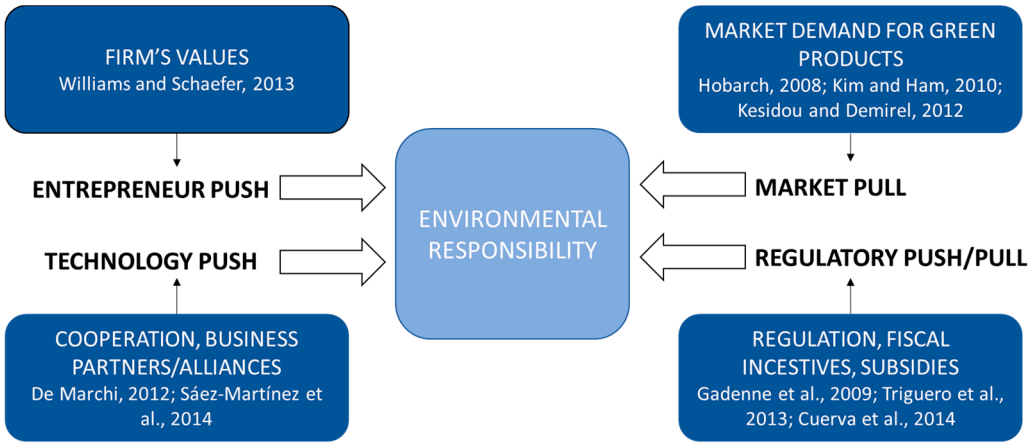

Figure 1. Drivers of environmental responsibility behavior. Adapted from Sáez-Martínez et al. [58].

Additionally, technology push has been identified as another driver affecting environmental responsibility in companies. It appears due to the creation of technological alliances [59] with different stakeholders, including suppliers, business partners, universities and research centers [60], that serve as enabling factors for SMEs eco-innovation. Innovative SMEs show greater interest in developing corporate social responsibility activities related to the environment [40].

Finally, and especially in SMEs, the literature has focused on firms' values. Related to a firm's values and capabilities are the entrepreneur's values and personal commitments, which can be linked to a higher level of environmental concern [61] because their attitudes are directly connected to corporate social activities [37]. The approach of small firms to ER is different from that of large firms in that it is personalized and informal. SME's engagement with ER reflects the values of their owners and the needs of their community, since their engagement results more from a genuine concern for the community and the environment than the anticipated business benefits [42]. The top management team has an important role in defining the environmental orientation of a firm, because their values determine to a great extent the environmental practices implemented by the firm [62], especially in SMEs, where the entrepreneur is the main strategic decision-maker in most cases. Anyway, these firms are characterized by personalized management and tend to lack a formal management structure, and their proenvironmental initiatives tend to have a personalized, ad hoc flavor [33,63]. Hence, *entrepreneur push* seems to be an important driver of ER behavior.

In the following section, we will check whether these factors really drive proactive environmental behavior among SMEs in the water and waste management industry.

3. Materials and Methods

3.1. Eurobarometer/Database

In the European Union, activities related to water supply, sewerage, waste management and remediation (Statistical classification of economic activities in the European Community (NACE), Revision 2 Section E) comprise 74.3 thousand companies that employ 1.4 million people, accounting for 1.1% of the EU workforce and 1.5% of the value added to the non-financial business economy. Within the sector, waste management is the main activity in terms of the number of companies (45.3 thousand firms), while water supply, treatment and sewerage comprise 25.7 thousand companies. Regarding value added, water supply and sewerage present a higher share (50.3%) compared to employment share (40.0%), while in waste management, the opposite occurs (60.0% of the workforce and 48.1% of added value). Companies with remediation as their main activity are scarce [2].

Of the total EU companies within this sector, 98.8% are SMEs (with fewer than 250 persons employed), and they provide 50.7% of valued added [2]. SMEs also provide the greatest share of employment (55.8%), although their apparent labor productivity is lower than that of large companies. Within SMEs, most companies are micro enterprises with fewer than 10 workers employed, although the medium-sized enterprises present the larger proportion of workers and added value. By analyzing subsectors and shares' change, we find that in the water supply subsector, large enterprises represent up to 61.8% of the workforce in the EU-28. Additionally, EU countries present differences in the share of SMEs in this sector [2].

In this study, we use the Flash Eurobarometer Survey No. 381 dataset, titled "SMEs, resource efficiency and green markets, wave 2" [64], conducted at the request of the European Commission in September 2013. To define SMEs, the Eurobarometer applies the SME definition of the European Commission [65]. This survey relies on interviews developed using a random technique that provides a nationally representative sample of SMEs operating in 38 countries, including the 28 current Member States of the European Union, plus Albania, Israel, Iceland, Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Norway, the Republic of Serbia, Turkey and the United States. Our sample consists of 258 SMEs, providing a general overview of the sector in the mentioned states. Eurobarometer respondents had to be a general manager, a financial director or a significant owner of the company. As mentioned previously, SMEs tend to lack a formal management structure, and their proenvironmental initiative tends to have a personalized, ad hoc flavor [33,63]. Throughout the paper, we use the term entrepreneur to refer to the top manager assuming that sometimes he/she might not be the owner/founder. However, due to the small size of the companies, we can consider that the company leader is an entrepreneur or at least shows an entrepreneur-type attitude regarding the company that he or she runs.

3.2. Methodology

For the data analysis, a logistic regression analysis was used. The aim was to identify factors that affect the propensity to develop a positive environmental attitude in European SMEs. The ER was studied as a dichotomous variable for European SMEs with or without environmental responsibility. The selection of independent variables (drivers) was based on previous studies [58] and available information from the survey.

Logistic regression does not assume a linear relationship between the dependent and independent variables. The dependent variable (ER) must be dichotomous (two categories), and the independent variables need not be an interval, normally distributed, linearly related, nor of equal variance within each group. This is an appropriate method to use when the dependent variable Y is dichotomous and the aim is to test relationships through a model of conditional probability Pr (Y = 1/X = x) as a function

of X. The method employs binomial probability theory in which there are only two values to predict that probability (p) is one rather than zero (i.e., the company belongs to one group rather than the other) (Equation (1)).

$$p_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_{1,i} + \beta_k x_{k,i})}} \quad (1)$$

where "p" is the probability that a case is in a particular category and the "β" are the coefficients of the predictor variables "x" [66].

3.3. Data: Definition of Variables

In our model, we examine the drivers of ER. The dependent variable reflects environmental responsibility through a dummy variable that takes the value one when the company goes beyond compliance with environmental legislation and zero otherwise.

The explanatory variables are related to motivations for engaging in environmental practices. Nine dummy variables are included in the model to show these motivations or drivers of ER. We also include the size of the firm and its country of origin. Table 1 shows these variables' definitions.

Table 1. Variables' definitions.

Variables	Variables' Operationalization
Environmental Responsibility (ER)	Initial options of this variable reflect a gradual scale of pro-environmental attitude. The options are: the company has difficulties in complying with national environmental legislation; the company just complies with it; the company complies and contemplates doing more; the company goes beyond compliance despite the lack of pro-environmental attitudes of the entrepreneur the company goes beyond compliance and considers environmental concerns as one of its priorities. These options have been aggregated in two to generate a dummy variable that takes the value 1 when the company goes beyond compliance with environmental legislation (options vi and v) and 0 otherwise (Options i, ii and iii).
MARKET PULL AS DRIVER OF ER	
Clients' demands	A dummy variable that takes the value 1 when the firm indicates that consumers' willingness to pay for environmental products/services fostered the development of environmental practices.
Business opportunity	A dummy variable that takes the value 1 when the firm specifies that the possibility of creating a competitive advantage of a business opportunity motivated the development of an environmental practice.
TECHNOLOGY PUSH AS DRIVER OF ER	
Competitors	A dummy variable that takes the value 1 when the firm specifies that catching up with main competitors who have already taken action motivated the development of environmental practices.
REGULATORY PUSH/PULL AS DRIVER OF ER	
Subsidies	A dummy variable that takes the value 1 when the firm specifies that subsidies fostered the development of environmental practices.
Fiscal Incentives	A dummy variable that takes the value 1 when the firm specifies that financial incentives received through private and public external support fostered the development of environmental practices.
Accomplish Law	A dummy variable that takes the value 1 when the firm specifies that the need to comply with environmental law foster the development of environmental practices.
ENTREPRENEUR PUSH AS DRIVER OF ER	
Company Values and Mission	A dummy variable that takes the value 1 when the firm specifies that environmental practices were developed because they were part of the company values and mission.
Corporate Image	A dummy variable that takes the value 1 when the firm specifies that environmental practices were developed to maintain a corporate image.
Others	A dummy variable that takes the value 1 when the firm specifies that other factors fostered the development of environmental practices.

Table 1. *Cont.*

Variables	Variables' Operationalization
SIZE OF THE FIRM	
Micro-firms	A dummy variable that takes the value 1 when the firm has fewer than 9 employees.
Small firms	A dummy variable that takes the value 1 when the firm has from 10 to 49 employees.
Medium-sized firms	A dummy variable that takes the value 1 when the firm has from 50 to 249 employees.
OTHER VARIABLES	
Country	38 dummy variables reflecting the current 28 Member States of the European Union plus Albania, Israel, Iceland, Liechtenstein, Montenegro, the former Yugoslav Republic of Macedonia, Norway, Republic of Serbia, Turkey, and the United States

4. Results and Discussion

Descriptive statistics of data and correlations are shown in Table S1. Figure 2 shows the results of our examination of the environmental behavior of the firms in this industry. The results show that 96% of companies in the water and waste sector can successfully comply with legislation. Only 4% of the firms in the sample have difficulties in complying with environmental legislation. In the sector, 28% of the companies do not have any expectation of developing more environmentally-responsible production, while 32% of them are contemplating doing so in the future. Additionally, up to 40% of companies go beyond environmental regulatory requirements and present environmental responsibility. Most of the companies that have environmental responsibility affirm that environmental concerns are at the top of the company priorities.

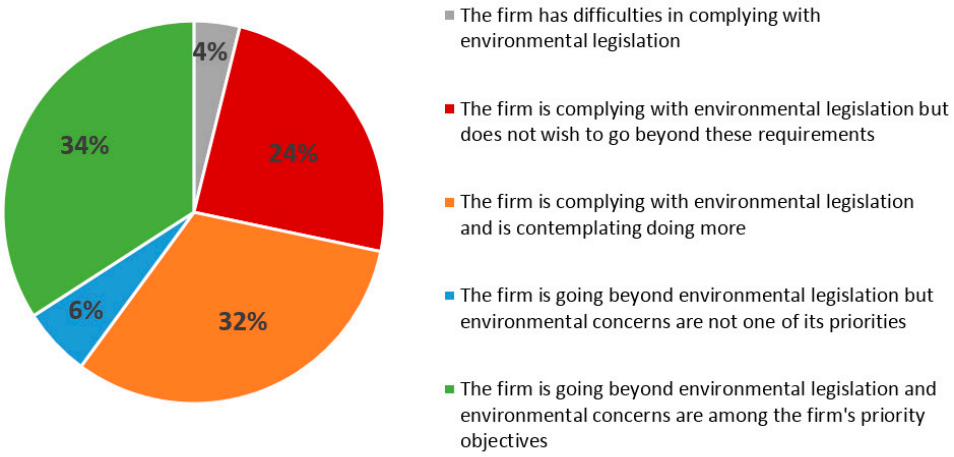

Figure 2. Level of environmental responsibility of European companies within the water supply, sewerage, waste management and remediation sector.

The reliability and validity of the proposed model (Figure 1) have been verified using the standard procedures used for logistic regression. The omnibus test indicates that the models are valid to explain the dependent variable ($p < 0.05$), so the selected explanatory variables are defined as useful for explaining the propensity of SMEs to develop environmental responsibility in this industry. The Hosmer and Lemeshow test determines the goodness of fit of the developed logistic regression model. A p-value higher than 0.05 for this test ($p = 0.068$) means that logistic regression analysis is an adequate method for the proposed data.

Attending to Nagelkerke R2, our model explains 0.590 of the total variance observed and can classify correctly up to 83.5% of the considered cases.

Table 2 shows the results of the logistic regression analysis on the drivers of ER within the water and waste management sector. The proposed model reflects that the variables that affect the decision

of European SMEs for the implementation of environmental responsibility are subsidies, corporate image and company values and mission.

Previous research identifies that larger size facilitates environmental engagement in companies [31]. As can be observed in Table 2, this general rule does not apply to SMEs within this industry. Compared to micro-firms, small and medium-sized enterprises in this industry do not significantly present a higher propensity towards environmental responsibility.

Table 2. Logistic regression model (Wald coefficients) of environmental responsibility in European SMEs within the water and waste management sector.

Independent Variables	Dependent Variable = Environmental Responsibility
Constant	0.019
Small firm	0.604
Medium-sized firm	0.352
Country dummies	Yes
MARKET PULL	
Clients' demands	2.191
Business opportunity	0.001
TECHNOLOGY PUSH	
Imitate competitors	0.125
REGULATORY PUSH/PULL	
Comply with law	0.044
Subsidies	4.076 **
Fiscal incentives	1.125
ENTREPRENEUR PUSH	
Corporate image	6.694 ***
Company values and mission	7.361 ***
Others	4.906 **
X2 model	77.605 ***
−2 log likelihood	106.584
Nagelkerke	0.590
% correctly predicted	83.5%
N	258

Note: ** $p < 0.05$; *** $p < 0.01$.

Regarding the drivers, market pull, unlike findings in other sectors [48,49], does not significantly foster ER. Client demands do not show any influence on the development of ER in European SMEs in the water sector. Additionally, market strategies, such as the identification of a business opportunity or the tendency to imitate competitors, are not statistically significant, so market forces do not foster companies to develop environmental responsibility in this industry. Nowadays, customers are more aware of environmental issues, and they convey to businesses their expectation that they will either engage in environmental activities or experience some kind of penalty [67], especially in certain industries (e.g., the chemical industry). An ER behavior can be fostered by the fact that consumers exhibit a higher willingness to pay for products or services [48] that have been produced in an environmentally-conscious way. This fact often makes entrepreneurs engage in sustainable behaviors beyond complying with governmental regulation, as in the chemical industry [68]. However, this is not the case for the water and waste management sector, according to our findings.

Concerning entrepreneur push, corporate image (coefficient 0.599; $p < 0.01$) and company values and mission (coefficient 0.727; $p < 0.01$) rely mainly on the values and the strategic decisions of entrepreneurs [61] and show the highest influence. SMEs' engagement reflects the values of their owners. Beyond the personal convictions of entrepreneurs, the development of a "green corporate image" could be associated with economic or commercial benefits, but the decision to display

environmental responsibility showed no relation with market pull variables. It could be proposed that company participation itself in a sector where contact with environmental issues is as close and direct as it is in this industry is what makes entrepreneurs develop environmental responsibility in their companies, as an act of social responsibility.

Finally, regarding the regulatory framework, subsidies have also shown an influence in encouraging entrepreneurs to develop a proactive strategy and go beyond legislation in developing more sustainable attitudes (coefficient 1.275; $p < 0.05$). However, other regulatory incentives, such as financial ones, do not have the same impact. Political implications can be extracted from these results. Additionally, the influence of variables that are not directly considered in this paper (included as "others" coefficient 3.333; $p < 0.05$) are also statistically significant, so further research is needed to truly identify what other factors are making SMEs develop environmental responsibility in the water and waste management sector.

5. Conclusions

The aim of this paper was to analyze the factors that drive SMEs to go beyond complying with environmental legislation and engage in ER behavior in the water and waste management sector in Europe. The percentage of SMEs in this sector that show environmental responsibility (40%) illustrates the strong commitment of this industry to sustainability. Moreover, predictions in the medium term are even more promising, as up to 32% of SMEs that have not yet followed this tendency are contemplating doing so in the future. Therefore, policy makers should consider additional incentives to motivate indecisive entrepreneurs. Policy makers, to stimulate environmental behavior within SMEs in this industry, should convince SMEs of such behavior's strategic importance in obtaining a competitive advantage when it is a core value that can lead to improvement in corporate image. Therefore, policy makers should make an effort to inform these firms about the prevailing environmental legislation and its repercussions, fostering voluntary initiatives that promote environmental self-regulation, providing support for firms engaging in this type of practice and recognizing them.

This paper notes the decisive role of top managers in being sensitive to ecological issues in order to undertake green initiatives. Firms aiming to achieve a competitive advantage should consider appointing an environmentally-committed individual. SMEs' engagement reflects the values of their entrepreneurs and/or managers, and the personal conviction of these entrepreneurs is what really leads these firms to go beyond environmental legislation and develop proactive behavior towards environmental responsibility. Additionally, our findings suggest that political legislation should prioritize subsidies over fiscal incentives, optimizing the investment in promoting the adoption of environmental responsibility in European SMEs.

Future research should focus on the identification of other drivers that might be fostering the propensity of SMEs in this industry to have ER and increase our understanding of this behavior in this industry. Moreover, a deeper analysis of the identification of particular ER practices among firms is also needed. We have developed a study in a European context, where most of the regulation is driven by the EU. However, legislation and policies on how water and waste are managed may vary from country to country. It is government's duty to protect its citizens. Nevertheless, there is a difference between properly regulated countries and so-called "weak governance zones" [69]. Hence, going beyond environmental legislation may not require the same effort and environmental compromise in all countries because regulations may differ. Therefore, a deep analysis is needed to identify specific ER practices developed by those firms that accept responsibility for their activities and go beyond the government's regulation. The identification of those business leaders' initiatives may be the key to increasing the sustainability of this industry.

Supplementary Materials: The supplementary materials are available online at www.mdpi.com/2073-4441/9/3/151/s1. Table S1: Descriptive statistics and correlations.

Acknowledgments: The authors gratefully acknowledge the financial support from the Spanish Ministry of Economy and Competitiveness (ECO2015-70262-R). This research has also been partially supported by a grant from the University of Castilla-La Mancha (Ref. (2015/4062)).

Author Contributions: Adrián Rabadán and Francisco J. Sáez-Martínez conceived of and designed the experiments. Adrián Rabadán and Francisco J. Sáez-Martínez performed the experiments. Adrián Rabadán and Francisco J. Sáez-Martínez analyzed the data. Francisco J. Sáez-Martínez contributed reagents/materials/analysis tools. Adrián Rabadán and Francisco J. Sáez-Martínez wrote the paper.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. United Nations. Available online: http://www.un.org/sustainabledevelopment/sustainable-development-goals/ (accessed on 24 March 2016).
2. Eurostat. Available online: http://ec.europa.eu/eurostat/ (accessed on 5 April 2016).
3. World Bank. *What a Waste: A Global Review of Solid Waste Management*; Urban Development Series Knowledge Series n° 15; World Bank: Washington, DC, USA, 2012.
4. Pahl-Wostl, C. Towards sustainability in the water sector—The importance of human actors and processes of social learning. *Aquat. Sci.* **2002**, *64*, 394–411. [CrossRef]
5. Ashley, R.; Blackwood, D.; Butler, D.; Davies, J.; Jowitt, P.; Smith, H. Sustainable decision making for the UK water industry. *Eng. Sustain.* **2003**, *156*, 41–49. [CrossRef]
6. Marlow, D.R.; Beale, D.J.; Burn, S.A. Pathway to a more sustainable water sector: Sustainability-based asset management. *Water Sci. Technol.* **2010**, *61*, 1245–1255. [CrossRef] [PubMed]
7. Marlow, D.; Humphries, R. Sustainability within the Australian water industry: An operational definition. *Water J. Aust. Water Assoc.* **2009**, *36*, 118–123.
8. Russo, T.; Alfredo, K.; Fisher, J. Sustainable water management in urban, agricultural, and natural systems. *Water* **2014**, *6*, 3934–3956. [CrossRef]
9. Li, E.; Endter-Wada, J.; Li, S. Characterizing and Contextualizing the Water Challenges of Megacities. *J. Am. Water Resour. Assoc.* **2015**, *51*, 589–613. [CrossRef]
10. Sun, G.; Michelsen, A.M.; Sheng, Z.; Fang, A.F.; Shang, Y.; Zhang, H. Featured Collection Introduction: Water for Megacities—Challenges and Solutions. *J. Am. Water Resour. Assoc.* **2015**, *51*, 585–588. [CrossRef]
11. World's Population Increasingly Urban with More than Half Living in Urban Areas. Available online: http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html (accessed on 23 March 2016).
12. Harremoës, P. Integrated water and waste management. *Water Sci. Technol.* **1997**, *35*, 11–20. [CrossRef]
13. Otterpohl, R.; Grottker, M.; Lange, J. Sustainable water and waste management in urban areas. Sustainable Sanitation. *Water Sci. Technol.* **1997**, *35*, 121–133. [CrossRef]
14. Bassi, A.M.; Tan, Z.; Goss, S. An integrated assessment of investments towards global water sustainability. *Water* **2010**, *2*, 726–741. [CrossRef]
15. Burn, S.; Marlow, D.; Moglia, M.; Buckland, P. Asset management for water infrastructure. *Water Asset. Manag. Int.* **2007**, *3*, 12–18.
16. Hengeveld, H.; De Vocht, C. Role of water in urban ecology. In Proceedings of the Second International Environmental Symposium of the Royal Netherlands Land Development Society, Amsterdam, The Netherlands, 27–31 August 1979.
17. Makropoulos, C.K.; Memon, F.A.; Shirley-Smith, C.; Butler, D. Futures: An exploration of scenarios for sustainable urban water management. *Water Policy* **2008**, *10*, 345–373. [CrossRef]
18. Marlow, D.R.; Moglia, M.; Cook, S.; Beale, D.J. Towards sustainable urban water management: A critical reassessment. *Water Res.* **2013**, *47*, 7150–7161. [CrossRef] [PubMed]
19. Rathnayaka, K.; Malano, H.; Arora, M. Assessment of Sustainability of Urban Water Supply and Demand Management Options: A Comprehensive Approach. *Water* **2016**, *8*, 595. [CrossRef]
20. Sharma, A.; Burn, S.; Gardner, T.; Gregory, A. Role of decentralised systems in the transition of urban water systems. *Water Sci. Technol. Water Supply* **2010**, *10*, 577–583. [CrossRef]

21. Blackmore, J.M.; Plant, R.A.J. Risk and resilience to enhance sustainability with application to urban water systems. *J. Water Resour. Plan. Manag.* **2008**, *134*, 224–233. [CrossRef]
22. Capodaglio, A.G.; Ghilardi, P.; Boguniewicz-Zablocka, J. New paradigms in urban water management for conservation and sustainability. *Water Pract. Technol.* **2016**, *11*, 176–186. [CrossRef]
23. Boeuf, B.; Fritsh, O.; Martin-Ortega, J. Undermining European Environmental Policy Goals? The EU Water Framework Directive and the Politics of Exemptions. *Water* **2016**, *8*, 388. [CrossRef]
24. Hurlimanna, A.; Dolnicarb, S. When public opposition defeats alternative water projects—The case of Toowoomba Australia. *Water Res.* **2010**, *44*, 287–297. [CrossRef] [PubMed]
25. Erbe, V.; Frechmann, T.; Geiger, W. Integrated modelling as an analysing and optimisation tool for urban watershed management. *Water Sci. Technol.* **2002**, *46*, 141–150. [PubMed]
26. Syme, G.J.; Nancarrow, B.E. Planning attitudes, lay philosophies, and water allocation: A preliminary analysis and research agenda. *Water Resour. Res.* **1996**, *32*, 1843–1850. [CrossRef]
27. Pearson, L.J.; Coggan, A.; Proctor, W.; Smith, T.F. A sustainable decision support framework for urban water management. *Water Resour. Manag.* **2009**, *24*, 363–376. [CrossRef]
28. Bos, J.J.; Brown, R.R. Governance experimentation and factors of success in socio-technical transitions in the urban water sector. *Technol. Forecast. Soc. Chang.* **2012**, *79*, 1340–1353. [CrossRef]
29. Pahl-Wostl, C. A conceptual framework for analysing adaptive capacity and multi-level learning processes in resource governance regimes. *Glob. Environ. Chang.* **2009**, *19*, 354–365. [CrossRef]
30. Lambooy, T. Corporate social responsibility: Sustainable water use. *J. Clean Prod.* **2011**, *19*, 852–866. [CrossRef]
31. Cassells, S.; Lewis, K. SMEs and environmental responsibility: Do actions reflect attitudes? *Corp. Soc. Responsib. Environ. Manag.* **2011**, *18*, 186–199. [CrossRef]
32. Blundel, R.; Monaghen, A.; Thomas, C. SMEs and environmental responsibility: A policy perspective. *Bus. Ethics* **2013**, *22*, 246–262. [CrossRef]
33. Nybakk, E.; Panwar, R. Understanding instrumental motivations for social responsibility engagement in a micro-firm context. *Bus. Ethics* **2015**, *24*, 18–33. [CrossRef]
34. Hillary, R. Environmental management systems and the smaller enterprise. *J. Clean. Prod.* **2004**, *12*, 561–569. [CrossRef]
35. European Commission. Available online: http://ec.europa.eu/ (accessed on 10 April 2016).
36. Martinez, F. A three-dimensional conceptual framework of corporate water responsibility. *Organ. Environ.* **2015**, *28*, 137–159. [CrossRef]
37. Lee, K.-H.; Herold, D.M.; Yu, A.-L. Small and Medium Enterprises and Corporate Social Responsibility Practice: A Swedish Perspective. *Corp. Soc. Responsib. Environ. Manag.* **2015**, *23*, 88–99. [CrossRef]
38. Blanchi, R.; Noci, G. "Greening" SMEs' Competitiveness. *Small Bus. Econ.* **1998**, *11*, 269–281. [CrossRef]
39. Gunningham, N. *Corporate Environmental Responsibility*; Ashgate publishing Ltd.: Farnham, UK, 2009.
40. Jenkins, H. Small Business Champions for Corporate Social Responsibility. *J. Bus. Ethics* **2006**, *67*, 241–256. [CrossRef]
41. Gallardo-Vázquez, D.; Sánchez-Hernández, M.I. Structural analysis of the strategic orientation to environmental protection in SMEs. *BRQ-Bus. Res. Q.* **2014**, *17*, 115–128. [CrossRef]
42. Panwar, R.; Nybakk, E.; Hansen, E.; Pinkse, J. The effect of small firm's competitive strategies on their community and environmental engagement. *J. Clean. Prod.* **2016**, *129*, 578–585. [CrossRef]
43. Gadenne, D.L.; Kennedy, J.; McKeiver, C. An empirical study of environmental awareness and practices in SMEs. *J. Bus. Ethics* **2009**, *84*, 45–63. [CrossRef]
44. Simpson, M.; Taylor, N.; Barker, K. Environmental responsibility in SMEs: Does it deliver competitive advantage? *Bus. Strategy Environ.* **2004**, *13*, 156–171. [CrossRef]
45. Martín-Tapia, I.; Aragón-Correa, J.A.; Rueda-Manzanares, A. Environmental strategy and exports in medium, small and micro-enterprises. *J. World Bus.* **2010**, *45*, 266–275. [CrossRef]
46. Díaz-García, C.; González-Moreno, A.; Sáez-Martínez, F.J. Eco-innovation: Insights from a literature review. *Innov. Organ. Manag.* **2015**, *17*, 6–23. [CrossRef]
47. Babiak, K.; Trendafilova, S. CSR and environmental responsibility: Motives and pressures to adopt green management practices. *Corp. Soc. Responsib. Environ.* **2011**, *18*, 11–24. [CrossRef]
48. Kim, Y.; Ham, H. Intention to pay conventional-hotel prices at a green hotel. A modification of the theory of planed behaviour. *J. Sustain. Tour.* **2010**, *18*, 997–1014. [CrossRef]

49. Krause, J. The potential of an environmentally friendly business strategy—Research from the Czech Republic. *Int. J. Eng. Bus. Manag.* **2015**, *7*, 1–6. [CrossRef]
50. Doran, J.; Ryan, G. The Importance of the Diverse Drivers and Types of Environmental Innovation for Firm Performance. *Bus. Strategy Environ.* **2016**, *25*, 102–119. [CrossRef]
51. Sáez-Martínez, F.J.; Díaz-García, C.; González-Moreno, A. Firm technological trajectory as a driver of eco-innovation in young and small medium-sized enterprises. *J. Clean. Prod.* **2016**, *138*, 28–37. [CrossRef]
52. Hobach, J. Determinants of environmental innovation—New evidence from German panel data sources. *Res. Policy* **2008**, *37*, 163–173. [CrossRef]
53. Kesidou, E.; Demirel, P. On the drivers of eco-innovations: Empirical evidence from the UK. *Res. Policy* **2012**, *41*, 862–870. [CrossRef]
54. Triguero, A.; Moreno-Mondejar, M.L.; Davia, M.A. Drivers of different types of Eco-innovation in European SMEs. *Ecol. Econ.* **2013**, *92*, 25–33. [CrossRef]
55. Porter, M.; Van der Linde, C. Toward a new conception of the environment-competitiveness relationship. *J. Econ. Perspect.* **1995**, *9*, 97–118. [CrossRef]
56. Jones, C. Exploring new ways of assessing the effect of regulation on environmental management. *J. Clean. Prod.* **2010**, *18*, 1229–1250. [CrossRef]
57. Cuerva, M.C.; Triguero-Cano, A.; Córcoles, D. Drivers of green and non-green innovation: Empirical evidence in Low-Tech SMEs. *J. Clean. Prod.* **2014**, *68*, 104–113. [CrossRef]
58. Sáez-Martínez, F.J.; Díaz-García, C.; González-Moreno, A. Factors promoting environmental responsibility in European SMEs: The effect on performance. *Sustainability* **2016**, *8*, 898. [CrossRef]
59. De Marchi, V. Environmental innovation and R&D cooperation: Empirical evidence from Spanish manufacturing firms. *Res. Policy* **2012**, *41*, 614–623.
60. Sáez-Martínez, F.J.; González-Moreno, A.; Hogan, T. The role of the University in eco-entrepreneurship: Evidence from the Eurobarometer Survey on Attitudes of European Entrepreneurs towards Eco-innovation. *Environ. Eng. Manag. J.* **2014**, *13*, 2451–2459.
61. Williams, S.; Schaefer, A. Small and Medium-Sized Enterprises and Sustainability: Managers' Values and Engagement with Environmental and Climate Change Issues. *Bus. Strategy Environ.* **2013**, *22*, 173–186. [CrossRef]
62. Menon, A.; Menon, A. Enviro-preneurial Marketing Strategy: The Emergence of Corporate Environmentalism as Marketing Strategy. *J. Mark.* **1997**, *61*, 51–67. [CrossRef]
63. Graafland, J.; van de Ven, B.; Stofeele, N. Strategies and instruments for organising CSR by small and large business in The Netherlands. *J. Bus. Ethics* **2003**, *47*, 45–60. [CrossRef]
64. Flash Eurobarometer 381. SMEs, Resource Efficiency and Green Markets. European Commission. Available online: http://ec.europa.eu/public_opinion/flash/fl_381_en.pdf (accessed on 5 April 2016).
65. European Commission. Growth. What Is an SME? Available online: http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en (accessed on 9 February 2017).
66. Hosmer, D.W.; Lemeshow, S. *Applied Logistic Regression*, 2nd ed.; Wiley Series in Probability and Statistics; Wiley: New York, NY, USA, 2000.
67. Langerak, F.; Peelen, E.; van der Veen, M. Exploratory Results on the Antecedents and Consequences of Green Marketing. *J. Mark. Res. Soc.* **1998**, *40*, 323–335.
68. King, A.A.; Lenox, M.J. Industry self-regulation without sanctions: The chemical industry's responsible care program. *Acad. Manag. J.* **2000**, *43*, 698–716. [CrossRef]
69. Organisation for the Economic Co-Operation and Development (OECD). OECD Risk Awareness Tool for Multinational Enterprises in Weak Governance Zones. Available online: http://www.oecd.org/daf/inv/corporateresponsibility/36885821.pdf (accessed on 23 March 2016).