



(RESEARCH ARTICLE)



## Hazardous waste management and investors perception of firm value

BALOGUN ANDREW OLANIYI\* and GOSPEL CHUKWU

*Department of Accounting, Ignatius Ajuru University of Education, Port Harcourt, Nigeria.*

GSC Advanced Research and Reviews, 2022, 13(02), 136–144

Publication history: Received on 28 September 2022; revised on 08 November 2022; accepted on 10 November 2022

Article DOI: <https://doi.org/10.30574/gscarr.2022.13.2.0260>

### Abstract

This study examines the impact of hazardous waste management on firm value of oil & gas companies in Nigeria. Secondary data used for this study were collected from the Nigerian Stock Exchange for the period 2010 – 2019. Data collected for the study were analyzed using descriptive statistics and multiple regression analysis. The result of the regression analysis indicates negative association between hazardous waste management and firm value of sampled firms. The result concludes that there is a financial reward in engaging in disclosure practices in the long – run. The result also shows that shareholders value firm high if they disclose related environmental issues. Based on the findings, the study recommends that oil and gas companies should adopt and practice environmental policies to show their commitment to the achievement of environmental sustainability. The disclosure of environmental issues affects how market participants (investors) evaluate the firm’s ability to generate profit in future.

**Keywords:** Hazardous; Waste; Management; Firm; Value

### 1 Introduction

In developing countries, a huge amount of waste is not reused or properly disposed of by firms (Gunasekaran & Spalanzani, 2012). This practice has led to the problem of hazardous waste management, and locating now landfills, as a result of depletion of raw material. Periathamby et al (2011) state that solid waste generation and its implications for society and environmental are global issues, with the complexity of waste composition and ever-increasing per capita waste generation becoming a challenge for managers, particularly in developing countries due to the lack of effort by authorities, the management of waste has become a persistent problem, despite that the largest part of municipal expenditure is allotted to it (Das & Bhattachartya, 2015).

Environmental and waste management related research in South Africa have focused more on disclosure (Fiench & Ball, 2005), but none of these prior researches has looked into the effect of waste management expenditure. Notwithstanding, there are greater social demands on firms to reduce their environmental impact because of the related environmental problems caused by firms’ operations (Contantini et al, 2017). Shaw (2012) states that many environmental issues have accompanied the growth in developing countries. French and Ball (2005) mentioned that in the past, poor environmental waste management as one of the issues in less developed countries as has been poorly funded.

A cornerstone of sustainability of any business is the establishment of an affordable, efficient, and true sustainable waste practice of the operational level (Kulkarni et al, 2014). However, waste management activities, like segregation, collection, treatment and disposal, still need to be done (Shalini et al, 2012). Implementation of appropriate waste management practices requires reliable waste statistics (Metin et al, 2013). The data should represent a sufficient long-time frame, with relatively short measurement frequencies, to be statistically acceptable (Gow et al, 2016).

\* Corresponding author: BALOGUN ANDREW OLANIYI  
Department of Accounting, Ignatius Ajuru University of Education, Port Harcourt, Nigeria.

Man's activities in his environment involves a lot of chemical synthesis in the process of converting the natural products in his environment into other forms convenient for his consumption (Ezeonu et al, 2016). In the current era of globalization and industrialization, the numbers of industries are increasing, with increasing production and consumption activities. These activities have together depleted the earth's resources, degraded the environment, caused loss of biodiversity and has impacted on the quality of people's life. There is now global concern for the long-term negative impact which trickles down on economic performance of firms and country as a whole. Thus, there is abundant scientific evidence that humanity is living unsustainably (Ezeonu et al, 2016). One of means to attain the desirable level of sustainability and to overcome the problem of unbalanced ecological environmental and economic development is through incorporation of the objectives of social equality, economic efficiency, and environmental performance into the company's operating practices (Miralles – Quiros, et al, 2018). All these negative effects are likely to reduce firm's competitiveness and affect its stock market value. Green space and other nongovernmental organizations threaten polluting firms with potentially damaging public relations companies, and government regulators increasingly tighten the noose around the executives' neck by assigning personal liability for environmental violations. Hence, investors know that executives could feel more immediately challenged and more personally threatened by reactions to negative environmental performance records or environmental accidents like the Shupal disaster or the Exxon Valdez Oil Spill. When managers subsequently present proposals for environmental efforts (which likely resulted from these managers better understanding of the potentials of environmental management), shareholders may mistakenly discount the validity of these proposals based on their still prevalent fear that the beneficiary of such activities would be primarily stakeholders other than the shareholders themselves (Claudia, 2009).

Even if investors might have been slow in realizing the positive value implications of green strategies there is considerable amount of evidence that shows that investors have quickly understood the downside implications of firm strategies that totally neglect environmental issues. These include the costs involved in future compliance with environmental regulations, and the risks of noncompliance in terms of environmental firms. These costs and risks of extremely poor environmental performance seem easier to explain in an objective manner since public legislation and regulation belongs by its nature to the public domain. Therefore, investors should be able to perfectly understand the negative value implications of poor environmental performance and adjust stock market prices as soon as this type of information is released to the public (Claudia, 2009).

### 1.1 Research Problem

Society is facing several environmental challenges, due to a massive increase in production services (Kularni et al) challenges, such as carbon emissions, increase negative environmental impacts (Mihai & Ingraio, 2016). These challenges are the result of bad practices, which represent a threatening factor for both local environment and public health, and cause major losses regarding composting recycling or energy recovery potential (Mihai & Ingraio, 2016). Hornsby, et al (2016) environmental challenges surrounding the effect of the current waste management practices have received high level of public attention, due to the continuous problems in establishing and implementation of effective waste management since the mid – 1990s.

The daily interactions between human elements and their respective environments usually have long lasting implications and consequences for the physical landscape. And as people attempt to meet their needs and wants, the consequences of their interaction continue to mount. Most particularly, rural – urban migration, deforestation, desertification and emission of effluence and other wastes have impacted negatively on the natural environment. These activities generate a variety of problems including soil, atmospheric water and noise pollution (Dutta & Bose, 2008). Although the accumulation of environmental degradation costs occurs at both individual and corporate levels, the latter tends to contribute more to the problem. In spite of the fact that the impact of firms' activities is global concern, its ramifications have increased significantly in recent years particularly in developing countries like Nigeria, where environmental degradation issues and bitter complaints of marginalization of host communities have fueled environmental activism and regulator sanctions for the firms (Joe & Kechi, 20130). It was until recently, release of hazardous wastes and endangerment of the ecosystem were commonly considered to be some of the necessary consequences of doing business in Nigeria.

### 1.2 Research Objective

The main objective of this study is to examine of hazardous waste management on investor perception of firm value of oil and gas firms listed on the Nigerian stock fact book. The specific objectives are-

- To determine the effect of waste management cost on firm value.
- To examine the effect of pollution abatement cost on firm value.
- To ascertain the effect of fines and penalties on firm value.

### 1.3 Research Questions

Based on the specific objectives the following questions are raised.

- What is the effect of waste management cost on firm value?
- What is the effect of pollution abatement cost on firm value?
- What is the effect of fines and penalties on firm value?

### 1.4 Research Hypotheses

In order to answer the research questions, the hypotheses below are formulated in null forms.

- H<sub>01</sub>: There is no statistical significant relationship between waste management cost and firm value.
- H<sub>02</sub>: There is no statistical significant relationship between pollution abatement cost and firm value.
- H<sub>03</sub>: There is no statistical significant relationship between fines and penalties and firm value.

## 2 Literature Review

### 2.1 Waste Management

Recovery, collection and removal of waste which includes the administration of such operation is useful for waste management (Jerie & Tevera, 2014). Therefore, now waste is managed and directly affects local and global environmental quality (Fischer, 2017). Researchers such as Gunsilius et al (2011) indicate that from the start of human history, disposal of waste has been problematic. The matter has gained more and more importance over the years, with increasing quantities of waste and awareness of the environmental impacts of policy managed waste (Fiench & Ball, 2015). Brunner and Rechberger (2015), in support of Gunsilius (2011), indicate that the rapidly growing volume of waste has become the main issue of waste management in today's societies. They note that waste management practices have grown over many centuries. Based on the above cited studies, it is obvious that waste management has been a long – standing challenge that has increased in recent years. In order to achieve a sustainable environment, there is the need to deal with the challenge of waste management.

An effective waste management strategy is currently a key target in environmental policies worldwide, and awareness of the environmental impacts of waste has continued to grow (Gow et al, 2006). It has been understood that growth in waste generation, unrestrained by correct reduction and management techniques, can damage natural systems (Benchmann & Ingenhoff, 2016). Waste is not environmentally friendly by nature; the waste produced contributes significantly to environmental degradation (Olsen, 2017). Mihai and Ingrao (2016), indicate that sustainable waste management is essential for optimizing the use of waste in the economy, and that proper management is a key issue in the nearest future. Waste and its management are about demand for resources, development, human behaviour, finance and much more (Horsonby et al, 2016). Alleluia and Ferrao (2016), state that in managing waste one needs to consider the suitable approaches and pay attention to the characteristics and properties of the waste that is generated. They further stated that developing countries have shortage of state-of-the-art facilities for proper regulatory guidelines for waste management, while production is increasing day by day, mostly in urban areas (Hafeez et al; 2016). They further suggested that efforts should be made available, particularly the waste management facilities database. It is important to encourage waste generators to put more efforts to manage the waste generated effectively (Gangoellis et al; 2014), the increasing waste amount needs more attention t the sector of waste management and Hornsby et al (2016) note that waste management is affecting the public domain, and it is also becoming increasingly apparent that there is no decision that can be taken without considering the pressure of compliance with new regulations on waste management. Proper waste management can only be achieved if those who generate waste, such as manufacturing businesses, individuals and households, are aware of waste separation (Aleluia & Ferrao, 2016). However, debris separation involves integrated waste management, which employs several waste control methods based on the waste hierarchy, which includes avoidance, reduction, reuse and disposal (Kulkarni et al, 2014). They further stated that, the waste hierarchy is aimed at minimizing the environmental impact of waste. It is important for those who participate in waste generation to be informed on how to manage waste, such as different types of waste, and how to separate them.

### 2.2 Firm Value

Firm value is an economic measure which reflects the market value of a business. In the view of Emeka – Nwokeji (2019), firm's market value is influenced by investor's perceptions of its managers' ability to anticipate and respond to future changes in the firm's economic environment. The forward – looking capital – based measure of the value of a firm used in this study is the share value which represents investors' perceptions of firm's market value relative to its book value.

## 2.3 Theoretical Review

There are three theoretical perspective that explains the relationship between hazardous waste management and perception of investors on firm value. There are waste management theory stakeholder theory and legitimacy theory. But this study is anchored on stakeholders' theory.

### 2.3.1 Waste Management Theory

Pongracz (2006), waste management theory is found on the expectation that waste management is meant to prevent waste from causing harm to both human health and the environment. Waste management involves from industrial ecology, which focuses much on manufacturing, and the design of processes and products of firms from a view point of product competitiveness and interaction with the environment (Pongracz, 2006). Moreover, moving towards waste reduction requires the firms commit themselves to increase the proportion of non-waste leaving the process. Garcia et al, (2004) state that waste represents a loss of valuable resources both in the form of materials and energy, many of which are scarce. Furthermore, waste management aims at encouraging the conservation of resources by applying waste management and avoidance of resource loss (Pongracz & Polijola, 2004). Hence, it is relevant in explaining this study on hazardous waste management and investor's perception on firm value.

### 2.3.2 Legitimacy Theory

Suchman (1995), define legitimacy as an assumption or perception that generalize the action of an entity to be desirable, proper or appropriate within some socially constructed system of norms and values.

Humphreys and Latour (2013) state that in a context where firms need to behave in a socially appropriate way and fulfill their obligations to the society, goes beyond profit – making activities. Thus, manufacturing firms have a duty to legitimize their operations by engaging in efficient waste management practices. These theories indicated that firms could not operate alone without engaging social and environmental issues.

### 2.3.3 Stakeholder Theory

A firm cannot maximize value if it ignores the interest of its stakeholders, including not only financial claimants, but also customers, employees, government officials, and communities (Jo et al, 2015). Avetisyan and Ferrery (2013) argue that firm's attention should not only focus on consumers, since each stakeholder is equally important in its economic progress. Mishra and Snar (2010) suggest that the stakeholder theory help firms to understand values, and offer a way to promote organizational responsibility. As a result, stakeholders have the legal or moral right to expect a firm to satisfy their interest (Lafreniere et al; 2013). Therefore, the amount spent on waste management by firms to reduce waste generation is relevant to this study. The above review indicated that the role of all stakeholders could not be taken for granted in firms operations.

## 2.4 Empirical Review

In a study conducted by Claudia (2009), on investor's perception of value creation in environmental strategies- the impact of past environmental performance on future stock market. The results revealed that investors have been slow to properly evaluate future increases in firm value associated with current good firm environmental performance while on the other hand investors have correctly discounted the future negative financial effects corresponding to high – polluter companies.

In a study carried out by Thabo et al, (2017) on the relationship between waste reduction targets on selected Japanese companies. The study revealed that waste reduction targets, as well as the impact of waste reduction targets on firm's profitability have a positive, but insignificant, correlation on the profitability of firms, and also indicate that there is a relationship between waste management expenditure and waste reduction targets.

In a study conducted by Agubata et al (2019) on the relevance of social and environmental performance. Nigerian chemical manufacturing firms were sampled. Data were analyzed using pooled ordinary least square regression. The result shows that environmental compliance policies and energy intensity negatively affect the share price of chemical manufacturing firms, but while the effect of environmental compliance policies on the share price is statistically significant, the effect of energy intensity is not significant. In addition, the result on environmental waste management and social issues policy, show positive effect on the share price of the sampled firms. The positive effect is statistical significant for social issues policies and not significant for waste management. Miralles – Quiro's et al, (2018), examined the value relevance of social responsibility activities carried out by companies listed on the Sao Paulo Stock Exchange

during the 2010 – 2015 period. The overall result suggests that environmental, social and governance play a significant role in enhancing firm value.

Murphy (2002), concluded that firms with high environmental ratings and firms that exceed regulatory requirements experience higher market valuation; while firms with negative environmental performance (e.g., environmental accidents oil spills, harmful substance releases, etc) experience decline in stock prices. Emeka – Nwokeji (2018), document in her study on environmental disclosure and market value of Nigerian oil and gas firms in the oil sector, that disclosure of pollution control and abatement cost and waste management have significant positive effect on firm value while environmental litigation cost has significant negative effect on firm value.

However, some findings provided evidence for cost concerned approach which argues that high environmental activities require huge costly investments and thus, lead to decrease in firm earnings. The result of the study by Hassel et al (2005) found negative influence of environmental performance on the market value of firms.

Uwuigbe (2011) investigated the relationship between the performance of firms and the level of corporate social responsibility and environmental sustainability reporting among firms in selected industries. To achieve this, the study critically developed and utilized a disclosure index to measure the extent of sustainability disclosure made by companies in their corporate annual reports. Multiple regression analysis was caused to test the research propositions. The study observed that there is a significant relationship between the performance of firms and the level of corporate environmental sustainability reporting similarly study was conducted by Amiolemen et al, (2018) using so publicly listed companies in the Nigerian Stock Exchange across various sectors for the period of five years. The study used a cross-sectional research design comprising the selected firms. Findings from the study revealed that the association between corporate social and environmental expenditure and the market price of the firm (when considered in aggregate) is not significant compared to previous studies.

### 3 Methodology

The study adopted ex post facto research design. The target population for the study comprised 20 oil and gas companies quoted on the Nigerian Stock Exchange as at December 31<sup>st</sup> 2019. A sample size of 10 oil and gas companies was used. Stratified proportionate sampling was adopted to select the number of companies studied, and were purposively selected. Validated data were obtained from the annual financial report of the 10 selected oil and gas companies for the period of 10 years (2010 – 2019) which constituted 30 firm year observations used for this study.

#### 3.1 Model Specification

The model specification for the causal relationship between hazardous waste management and investor's perception of firm value is stated in economic form as follows-

- $WMC = \alpha_0 + \alpha_1 FV + e$
- $PAC = \alpha_0 + \alpha_1 FV + e$
- $FPC = \alpha_0 + \alpha_1 FV + e$

Where

- WMC= Waste Management Cost
- PAC= Pollution Abatement Cost
- FPC = Fines and Penalties Cost
- FV= Firm Value
- $\alpha_0$  = Constant
- $\alpha_1$  = The Coefficient of the explanatory variable (Waste Management)
- E = error term

##### 3.1.1 Decision Rule

If significant 2-tailed value/Probability Value (PV) = 0.000 < 0.005 Accept Ho and Reject H<sub>1</sub>.

If significant 2-tailed value/Probability Value (PV) = 0.000 > 0.005 Accept H<sub>1</sub> and Reject Ho.

### 3.2 Data presentation

**Table 1** Data on WMC, PAC, FPC and Firm Value

| Independent variable hazardous waste management |           |          |        | Investors perception |
|---|-----------|----------|--------|----------------------|
| Year  | WMC       | PAC      | FPC    | FIRM VALUE           |
| 2010  | -         | 8084892  | -      | 3471.42              |
| 2011  | 244972    | 3791122  | -      | 452.57               |
| 2012  | 296208    | 5874539  | -      | 496.71               |
| 2013  | 351783    | 6269310  | 34460  | 1013.80              |
| 2014  | 11514622  | 6131406  | 15006  | 1014.52              |
| 2015  | 20822214  | 1341916  | -      | 926.82               |
| 2016  | 434080    | 12499204 | 3204   | 1052.23              |
| 2017  | 9634894   | 6328600  | 178794 | 1161.39              |
| 2018  | 436029058 | 9245813  | 192987 | 1118.27              |
| 2019  | 14592067  | 11680046 | -      | 979.26               |

Source-Annual Report and Account of Oil & Gas Companies in Nigeria from Nigeria Stock Exchange (NSE).

#### 3.2.1 Data analysis and interpretation

**Table 2** Model Summary

| Model Summary |        |          |                   |                            |
|---------------|--------|----------|-------------------|----------------------------|
| Model         | R      | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1             | 0.993a | 0.985    | 0.941             | 15.885                     |

a. Predictors: (Constant), FPC, PAC, WMC

**Table 3** Analysis of Variance between Firm Value and FPC, PAC and WMC

| ANOVAa |            |                |    |             |        |        |
|--------|------------|----------------|----|-------------|--------|--------|
|        | Model      | Sum of Squares | df | Mean Square | F      | Sig.   |
| 1      | Regression | 16961.175      | 3  | 5653.725    | 22.405 | 0.154b |
|        | Residual   | 252.344        | 1  | 252.344     |        |        |
|        | Total      | 17213.519      | 4  |             |        |        |

a. Dependent Variable: Firm Value; b. Predictors: (Constant), FPC, PAC, And WMC

Employing a multiple regression analysis, at 0.05 significance level, the results in the three tables above revealed as follows,  $F(3,6) = 22.405$ ,  $p\text{-value} = .154$ . This result indicates an overall insignificant relationship between the independent variable and the dependent variable.

Specifically, from the Coefficient table above we observed a partial coefficient of the multiple regression model of  $-1.881E-7$  which indicates that a unit increase of waste management cost (WMC) will lead to an adverse fall in firms value (Firm Value) by  $1.881E-7$ , that is holding constant the value of all the other independent variables [Pollution Abatement Cost (PAC) and Fines, Penalties Cost (FPC)] in the model. The probability value associated to WMC in the multiple model is .199 (see Coefficient table above), and this indicates an insignificant nexus between WMC and Firm Value.

With respect to the relationship between PAC and Firm Value in the multiple regression model, the partial regression coefficient is 8.875E-6, indicating a positive but insignificant relationship because the associated p-value is .221 holding constant the values of WMC and FPC.

**Table 4** Analysis of Coefficients Result on the Firm Value

| Coefficients a |            |                             |            |                           |        |       |
|----------------|------------|-----------------------------|------------|---------------------------|--------|-------|
| Model          |            | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|                |            | B                           | Std. Error | Beta                      |        |       |
| 1              | (Constant) | 938.031                     | 29.854     |                           | 31.421 | 0.020 |
|                | WMC        | -1.881E-7                   | 0.000      | -0.552                    | -3.086 | 0.199 |
|                | PAC        | 8.875E-6                    | 0.000      | 0.377                     | 2.759  | 0.221 |
|                | FPC        | 0.001                       | 0.000      | 1.326                     | 7.484  | 0.085 |

a. Dependent Variable: FVALUE

However, the results in the coefficient table revealed a positive partial regression coefficient of .001, which indicates that a unit increase in FPC leads to a .001 increase in Firm Value, holding WMC and FPC constant. This relationship has an associated probability value of .085 indicating that the positive relationship is not a significant one.

#### 4 Results and Discussion

In order to test the hypotheses, multiple regression was used and the result revealed an overall insignificant relationship between hypotheses 1 – 3 and firm value.

Prior expectation is that waste management cost, pollution abatement cost and fines and penalty cost should have positive impact on firm value. The results negate the findings of some previous empirical research. For example, Joe and Kechi (2013) carried out research on the implications of corporate social responsibility for performance of Nigerian firms. Their findings revealed significant positive relationship between waste management cost, pollution abatement cost, fines and penalty and corporate performance.

However, the result is in agreement with a study conducted by Badrinath and Bolster (1996) examined stock market reactions to environmental performance agency judicial actions on a sample of publicly traded firms and found that the companies suffered an average loss of 0.43% of their firm value after the environmental information was disclosed. In addition, Richardson and Welker (2001) found negative association between environmental disclosure and firm value. They argued that environmental disclosure would increase the burden on the firm and increase the cost of equity capital.

The overall results of this study revealed that there is no significant link between hazardous waste management and firm value. Evidence from prior, study on the predictive variables showed positive association with firm value. The study indicates that there is a financial reward in engaging in disclosure practices in the long run. The result also shows that shareholders value firm high if they disclose environmental issues.

#### Recommendations

Based on the findings the study recommends that oil and gas companies should adopt and practices environmental policies to show their commitment to the achievement of environmental sustainability. The disclosure of environmental issues affects how investors evaluate the firm's ability to create profits in future.

#### 5 Conclusion

In conclusion, oil and gas businesses should create and adhere to environmental policies to demonstrate their dedication to the attainment of environmental sustainability. The disclosure of environmental issues has an impact on how market participants' (investors') assessments of the company's potential for future profit are made.

---

## Compliance with ethical standards

### *Acknowledgments*

I am most grateful to my supervisor, Dr. Gospel Chukwu for his patience, guidance and directions. He painstakingly sees me through this arduous task despite his tight schedule, making necessary corrections and constructive criticisms which made this article a huge success.

### *Disclosure of conflict of interest*

No conflict of interest.

---

## References

- [1] Aleluia, J. & Ferrao, P. (2016). Characterization of urban waste management practices in developing Asian Countries: A new analytical framework based on waste characteristics and urban dimension. *Waste Mang.* 58, 415 – 429.
- [2] Avertisyan, E. & Ferrary, M. (2013). Dynamics of stakeholders implication in the institutionalization of the CSR field in France and in the United State. *Journal of Business Ethics.* 115, 115 – 133 (Cross Ref).
- [3] Bachmann, P. & Ingenhoff, D. (2016). Legitimacy through CSR disclosure. The advantage outweighs the disadvantages. *Public Relat. Rev.* 42, 386 – 394.
- [4] Badrinath, S.G. & Bolster, P.J. (1996). The role of market forces in EPA Enforcement Activity, *Journal of Regulatory Economics*, 10, 168 – 181 (Cross Ref).
- [5] Bhattacharya, S. (2012). Trade liberalization and industrial development, *Journal of Political Model.* 34, 253 – 269.
- [6] Brunner, P.H. & Rechberger, A. (2015). Waste to energy – key element for sustainable waste management. *Waste management*, 37, 3 – 12 (Cross Ref) (PubMed).
- [7] Claudia, N.B. (2009). Investors perception of value creation in environmental strategies. The impact of past environmental performance on firms stock market returns economics and applied informatics.
- [8] Costantini, V.; Mazzanti, M. & Montini, A. (2013). Environmental performance, innovation and spill over. Evidence from a regional NAMEA. *Ecol. Econ* 89, 101 – 114 (Cross Ref).
- [9] Das, S.; & Bhattacharya, B.K. (2015). Optimization of municipal solid waste collection and transportation routes waste management. 43, 9 -18, (Cross Ref) (PubMed).
- [10] Emeka – Nwokeji, N.A., Osisioma & Benjamin, C. (2019). Sustainability Disclosures and Market Value of Firms in Emerging Economy: Evidence from Nigeria. Published by European Centre for Research Training and Development UK Vol. 7, No 3, Pp. 1 – 19.
- [11] Fiehn, H.; & Ball, J. (2005). Background research paper: waste, South African Environmental on Hook: National State of the Environment Project: Department of Environmental Affairs and Tourism, Pretoria South Africa.
- [12] Gangoles, M., Casals, M., Forcada, N. & Macarulla, M. (2014). Analysis of the implementation of effective waste management practices in construction projects and sites, resource conservation recycling. 93, 99 -111 (Cross Ref).
- [13] Garcia, V., Pongracz, E. & Keiski (2004). Waste minimization and resource use optimization conference.
- [14] Gow, I.D., David, F.L. & Peter, C.R. (2016). *Causal Inference in Accounting Research Journal of Accounting Research.* 54, 477 – 523 (Cross Ref).
- [15] Gunasekaran, A. Spalanzani (2012). Sustainability of manufacturing and services: *Investigations for Research and Applications International Journal of Production*, Econ. 140, 35 – 37 (Cross Ref).
- [16] Gunsillius, E., Chaturvedi, B. & Scheinberg, A. (2011). The economics of the informal sector in solid waste management: CWG/G12. Escborn Germany.
- [17] Hafeez, S., Mahmood, A., Syed, J.H., Li, J., Ali, U., Malik, R.N. & Zhang, G. (2016). Waste dumping sites as a potential source of pops and associated health risks in perspective of current waste management practices in Lahore city Pakistan. *Science Total Environment.* 562, 953 – 961 (Cross Ref).



- [18] Hassel, L. & Nilsson, H. (2005). The value relevance of environmental performance: *European Accounting Review*, 14, 41 – 61.
- [19] Hornsby, C., Ripa, M., Vassilo, C. & Uigiati, S. (2016). A roadmap towards integrated assessment and participatory strategies in support of decision – making processes. The case of urban waste management, *Journal of Clean Production*. 142, 157 – 172 (Cross Ref).
- [20] Humphreys, A. & Latour, K.A. (2013). Framing the game: Assessing the impact of cultural representations on consumer perceptions of legitimacy. *J. Consum. Res.* 40, 773 – 795 (Cross Ref).
- [21] Jerie, S. & Tevera, D. (2014). Solid waste management practices in the informal sector of Gweru, Zimbabwe. *Journal of Waste Management*, 20, 1 – 8 (Cross Ref).
- [22] Joe, Duke & Kechi Kankpang (2013). Implications of corporate social responsibility for the performance of Nigerian firms. *advanced Management and Applied Economics*, Vol. 3, No 5, 73 – 87. Scien Press
- [23] Kulkami, S., Rao, P., & Patil, Y. (2014). Are the non-renewable resource utilization and waste management practices employed in India automobile sector sustainable? *Procedia Soc. Behave. Sci.* 133, 364 – 371 (Cross Ref).
- [24] Metin, E., Erozturk, A. & Neyim, C. (2013). Solid waste management practices a review of recovery and recycling operations in Turkey, *waste management*. 23, 425 – 432 (Cross Ref).
- [25] Mishra, S. & Snar, D. (2010). Does corporate social responsibility influence firm performance of Indian companies? *Journal of Business Ethics*, 95, 571 – 601.
- [26] Mlhai, F.C. & Ingrao, C. (2016). Assessment of biowaste losses through unsound waste management practices in rural areas and the role of home composting. *Journal of Clean Production* (Cross Ref).
- [27] Murphy, C.J. (2002). The profitable correlation between environmental and financial performance. A review of the research. *Light Green Advisors*.
- [28] Oslen, T.D. (2017). Political Stakeholder Theory: The state legitimacy and the ethics of microfinance in emerging economies, *business ethics*. 27, 212 – 256 (Cross Ref).
- [29] Periathamby, A; Hamid, F.S.; & Khidzir, K. (2011). Evolution of solid waste management in Malaysia: impacts and implications of the solid waste bill, 2009. 11, 96 – 103 (Cross Ref).
- [30] Pongracz, E. & Pohjola, V.J. (2004). Re-defining waste, the concept of ownership and the role of waste management, *resource conservation recycling*, 40, 141 – 153.
- [31] Pongracz, E. (2006). Industrial ecology and waste management: from theories of waste management to applications production industrial ecology, *International Journal of Ecology*. 3, 59 – 74 (Cross Ref).
- [32] Pongracz, E., Philips, P.S. & Keiski, R.L. (2004). Evolving the theory of waste management – implication to waste minimization in proceedings of the waste minimization and resources use optimization conference, Oulu. Finland, Pp. 61 – 67.
- [33] Richardson & Weiker, M. (2001). Disclosure policy, information asymmetry, and liquidity markets. *Contemporary Accounting Research* 11(2), 801-827.
- [34] Shalini, S., Harsh, M., & Mathur, B.P. (2012). Evaluation of bio medical waste management practices in a government medical college and hospital *natl. journal of Community Med.* 3, 80 – 84.
- [35] Shaw, W. (2015). Will Emerging Economies Repeat the Mistakes of their Rich Cousins? *International Economic Bulletin* 2012.
- [36] Suchman, M.C. (1995). Managing legitimacy: strategic and institutional approaches, *Acad. Manag. Rev.* 20, 571 – 601.
- [37] Thabo, G.M., Gibson, N. & Michael, B.F. (2017). The relationship between waste management expenditure and waste reduction targets on selected JSE companies.
- [38] Uwuigbe, U. & Olayinka, M.U. (2011). Corporate social and environmental disclosure in Nigeria: A Comparative study of the building natural and brewery industry. *International Journal of Business and Management*, 6(2), 258 – 264