



Analysis of the factors affecting facilities compliance to environmental regulations in Minna – Niger State, Nigeria

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ABSTRACT

This study explores factors affecting facilities' compliance to environmental regulations. The objectives were to: examine operator's knowledge of environmental legal requirement of the facility, identify factors affecting environmental compliance and determine relationship between facility and environmental regulators. Systematic random sampling was used in selecting facilities, while purposive random sampling was adopted in selecting respondents from each facility. Simple random sampling was employed in selecting respondents from the regulatory agencies. The instrument for data collection from the respondents is a semi-structured set of questionnaires each for facility and regulators respectively. The questionnaire was administered to one hundred and twenty (120) respondents drawn from eight (8) facilities in different sectoral groups, while one hundred and sixteen (116) were administered to the regulatory agencies (NESREA and NISEPA). Findings shows that challenges militating against compliance to environmental regulations in the area include: the relationship between the regulatory agencies and the facility operators as reported by 22.9% of respondents who upheld that there is fairly relationship between the facility operators and the regulatory agencies. More so, the singled most influential factor is lack of awareness of the regulations (52.5%). Consultation between the environmental regulators and the facility operators prior to the introduction of any environmental regulation is a factor in environmental compliance as reported by 37.6% of the respondents (facility operators) who maintained that they are not consulted before introducing any environmental regulation. It is recommended among others that every facility operator

should be considered as a stakeholder in drafting environmental regulations. Exclusion of them is tantamount to low level of compliance as they will claim not to be aware of the regulations. Also, there is need to consistently create environmental awareness among the facility operators and the general public in order to become environment conscious and uphold environmental sustainability.

Keyword: Knowledge of Environment Regulation; Environmental compliance Factors; Environmental Consultation; Minna; Nigeria

1. INTRODUCTION

Environmental compliance becomes a subject of discourse in recent times both locally and internationally. Identifying factors militating against environmental compliance in industrial and non-industrial sectors is critical to effective environmental compliance and sustainable environmental development.

Bruce and Ken (2012) observed that the overall prosperity of a state relies on a healthy environment and effectively managing natural resources and primary industries to keep them sustainable. This entails controlling or regulating high-risk aspects of their use, preserving economically important industries, meeting community expectations and protecting the environment. In any regulatory situation some people will comply voluntarily, some will not comply, and some will comply only if they see that others receive a sanction for noncompliance.

This phenomenon that people will change their behavior to avoid a sanction is called *deterrence*. According to Polinsky and Shavell, (2000) factors affecting environmental compliance include: economic, social, personal, management and technological. Mohamud, (2013) indicated that technical factors and developers' level of awareness are the major factors that influenced the compliance to the EIA/EA regulations.

In Nigeria, despite facilities (industrial and non-industrial) vital role in economic development through stimulating competition, developing new technologies and products, and by creating jobs, have significant environmental problems. These are responsible for negative environment issues such as the emission of carbon dioxide (CO₂) and other global warming gases, waste generation and the emission of ozone-depleting chemicals like chlorofluorocarbons (CFCs) with retrospection on human health (Linh, 2006). Governments at all levels in Nigeria have used different means such as command and control regulation, as well as end-pipe control measures to push facilities towards environmental compliance. Environmental compliance of facilities still have a long way to go as shown by Salihu, Nabegu, Abdulkarim and Mustapha (2015) which indicated 54.2% level of compliance of facilities to environmental regulations.

It is in light of the above that this study sought to explore the underlying factors militating against environmental compliance of facilities in Minna, Niger State. The objectives of this study were to: examine operator's knowledge of environmental legal requirement of the facility, identify factors affecting environmental compliance and determine relationship between facility and environmental regulators.

2. STUDY AREA AND METHODOLOGY

Minna is the administrative capital of Niger State. It lies between latitudes 9°33' and 9°41' north of the equator and longitude 6°29' and 6°36' east of the Greenwich meridian. It is about 145 kilometres by road from Federal Capital Territory (FCT) Abuja. Minna being the capital of Niger state has grown in population and area extent since 1976 when Niger state was created. Its administrative role in housing most of the government institutions which has attracted people from far and wide to live and work in Minna. This growth led to wide spread of different economic activities, establishment of industries and other related ventures. However, in Minna there are different activities that require environmental audit and compliance to environmental regulations. These cut across the different sectors such as chemical, pharmaceutical, soap and detergent; construction; domestic and industrial plastic, rubber and form; food and beverage; quarry/alsphat; sanitation and waste control; telecom; wetland, river banks and lakeshores. In chemical pharmaceutical soap and detergent sector: there is Dana Pharmaceutical Co Ltd., Fine Gauge Nig. Ltd. and Jesy Pharmaceutical Co Ltd. Figure I and II shows NESREA and NISEPA office at Minna respectively.



NESREA office at Minna

Source: Field survey, 2015

In order to determine the sample frame for this study, National Environmental Standards and Regulations Enforcement Agency (NESREA) branch office, Minna and Niger State Environmental Protection Agency (NISEPA) were consulted. They provided the total number of the work force in their respective agency and also the list of all the major facilities within Minna that require compliance to environmental regulations. A systematic random sampling was used for the selection of facilities where respondents were sampled. The

facilities were arranged alphabetically in each of the sectoral group. Thereafter, every first facility was chosen as a representative of each sectoral group within the sample frame which gave a total of eight facilities. 152 questionnaires were administered in the selected facilities that gave a total of 120. This sample selection was adapted from Linh, (2006) who carried out similar study of small and medium-sized enterprises in Vietnam. Specifically 52 copies were administered to NESREA, and 64 to NISEPA. Table 1 indicates the distribution of the sampled facilities.



NISEPA office at Minna
Source: Field survey, 2015

Table 1. Sampled Respondents.

Sampled Facility	Delivered questionnaire	Responded/Used
Dana Pharmaceutical Co Ltd.	15	15
Access field Nig. Ltd	15	15
Abduraham Murtala Entepriees Ltd.	15	12
Yanaa Farms and Resort	15	13
Enerco Construction Com .Ltd.	15	15
Minna General Hospital	15	13

Airtel Company	15	12
Bosso Dam	15	14
Total	120	109
Regulator	Delivered questionnaire	Responded/Used
NESREA	52	44
NISEPA	64	52
Total	116	96

Source: Field Survey, 2015

In administering the questionnaire, a purposive sampling technique was used to identify the targeted respondents from each of the facility. Facility managers, environmental committee members, health safety and environmental officers directly involved in environment related issues in the areas of waste management, wastewater discharge, pollution abatement and health safety of workers were the major respondents. Simple random sampling was used to select respondents from the regulatory agencies namely, the National Environmental Standards and Regulations Enforcement Agency (NESREA) branch of Minna and Niger State Environmental Protection Agency (NISEPA). The data obtained was analyzed and presented as frequency tables and percentages.

3. RESULTS AND DISCUSSION

3. 1. Knowledge of environmental legal requirement of the facility

Knowledge of environmental legal requirement is a cardinal factor in promoting environmental compliance. This is hinged on the belief that if you are not properly informed, you are misinformed. Table 2 shows Sufficient Knowledge of Environmental Legal Requirement.

Table 2. Sufficient Knowledge of Environmental Legal Requirement.

Sufficient knowledge	Frequency	Percentage (%)
Very confident	32	29.4
Fairly confident	28	25.6
Not so confident	26	23.9
Not at all confident	23	21.1
Total	109	100

Source: Field Survey, 2015

Respondents (72.5%) from the facilities confirmed that they are aware of the various environmental regulations applicable to their facilities. This is in contrast to 24.7% of the respondents from the facilities who indicated that they are not aware of the various environmental regulations applicable to their facilities, while 2.8% of the respondents maintained silent on the matter. Close examination of table 2 shows that 29.4% of the respondents who revealed that they are very confident of having sufficient knowledge of the environmental legal requirements applicable to their facilities. This is followed by 25.6% of the respondents, who indicated that they are fairly confident to have sufficient knowledge of the environmental legal requirements applicable to their facilities. Another 21.1% of the respondents posited that they are not at all confident to have sufficient knowledge of environmental legal requirement applicable to their facilities.

More so, from the preceding paragraph it is imperative to say that despite the greater percentage of those who revealed that they have sufficient knowledge of the applicable legal requirements; the 24.7% of the respondents who claimed to have no sufficient knowledge of the legal requirement is really significant. This 24.7% can go a long way to affect the rate of compliance to environmental regulations within the facilities in Minna metropolis. Therefore, it is needed to consistently keep the facility operators abreast with the various environmental legal requirements applicable to the various facilities. This will no doubt reduce the percentage of those who lack the knowledge of applicable environmental legal requirements, with a corresponding improvement on the rate of compliance at a long run. This corroborates the findings of OECD (2007) in Georgia that identified facilities are often ignorant about the legislations that governs their activities or do not understand what is required. It further maintained that proliferation of laws or multiple amendments to improve them can create confusion and make it difficult to understand what compliance involves. That inaccessible and incomprehensible regulation particularly affects small business rate of compliance to environmental regulations. This contrasts with the findings of Jane, Elegwa and Joseph, (2012) which revealed that majority of manufacturing sub-sectors in Nairobi, were aware of the regulations and were willing to implement as indicated by the responses received.

3. 2. Consultation prior to new environmental regulations

Field investigation revealed that 62.4% of the respondents (facility operators) affirmed that they are normally consulted by the regulatory agencies before the introduction of any new environmental regulations. This is in contrast to 37.6% of the respondents who indicated that they are not always consulted prior to introduction of any new environmental regulations. Furthermore, this finding suggests that while there seems to be consultation between the environmental regulators and the facility operators prior to the introduction of any environmental regulation, the consultation is not comprehensive.

This is substantiated by 37.6% of the respondents who maintained that they are not consulted before introducing any environmental regulation. Hence, there is need to carry along every facility operator as a stakeholder in drafting environmental regulations. Exclusion of them is tantamount to low level of compliance as they will claim not to be aware of the regulations. This assertion is supported by Jane, Elegwa and Joseph, (2012) that to promote positive response to environmental regulations by industries, Kenya Manufacturer Association (KMA) encourages her members to participate in environment stakeholders forums in which members are encouraged to participate in formulation and reviews of regulations and therefore have opportunity to voice their challenges proactively.

3. 3. Factors militating against environmental compliance

Table 3 shows various factors militating against environmental compliance as confirmed by both the environmental regulators and the facility operators.

Table 3. Factors Militating against Environmental Compliance.

FACTORS	OPERATORS		REGULATORS	
	Frequency	(%)	Frequency	(%)
Cost of compliance	15	13.8	2	25
Lack of awareness of the Regulations	39	35.8	16	16.7
Lack of technical expertise and skills	9	8.3	20	20.8
Lack of public support for environmental concern	19	17.4	8	8.3
Lack of awareness/ lack public support	19	17.4	8	8.3
Cost of compliance/ lack of awareness	6	5.5	12	12.5
Lack of awareness/ technical expertise & skills	2	1.8	8	8.3
Total	109	100	96	100

Source: Field Survey, 2015

The table reveals that the largest percentage (35.8%) of the respondents (facility operators) identifies lack of awareness of the regulations as the factor militating against compliance, contrasts to 16.7% of the regulators who indicated the same factor. On the other hand, 25% of the respondents (regulators) being the largest percentage attributed the factor to the cost of compliance, contrasts to 13.8% of the operators who indicated the same factor. However, the least factor identify by the operators is lack of awareness/ lack of technical expertise & skills (1.8%), contrasts to 8.3% of the regulators who confirmed the same factor. On the other hand, 8.3% each of the regulators being the least percentage indicated lack of awareness/ lack of technical expertise & skills, lack of public support for environmental concerns and lack of awareness/lack public support as the factor militating against environmental compliance.

Furthermore, from the forgoing it is apparent that all the factors highlighted above in one way or the other militate against compliance to extent environmental regulations. More so, the single most influential factor combining the percentage of both regulators and operators alike for each factor is the lack of awareness of the regulations (52.5%). While the least factor from the combination is lack of technical expertise & skills (10.1%).

Therefore, to effectively promote environmental compliance, there is need to consistently create environmental awareness among the facility operators and the general public in order to become environment conscious and uphold environmental sustainability. This finding corroborates OECD, (2007) in Georgia who identified that a number of different means can be used to increase public environmental awareness and understanding of effects on the environment from industrial activities, including articles in business journals and newspapers, TV and radio programmes, newsletters, leaflets, and special awareness raising

activities. Similarly, Jane, Elegwa and Joseph, (2012) established the influence of awareness on compliance using inferential statistics by postulating and testing a logistic regression model that took into account awareness of environmental regulations amongst other variables that included cost of compliance, experts capability, perceptions of benefits of compliance and business premises ownership. It was concluded that awareness is the single most influential on compliance with environmental regulations.

3. 4. Relationship between facility and environmental regulators

Table 4 shows the relationship between facility and the environmental regulators.

Table 4. Relationship between Facility and Environmental Regulators.

Relationship	Frequency	Percentage (%)
Excellent	9	8.3
Very good	16	14.7
Good	30	27.5
Fair	25	22.9
Poor	7	6.4
Cordial	12	11.0
Silent	10	9.2
Total	109	100

Source: Field Survey, 2015

Close inspection of the table 4 reveals that 27.5% of the respondents testify that there is a good relationship between them (facility operators) and the regulatory agencies, followed by 22.9% who upheld that there is fairly relationship between the operators and the regulators. Furthermore, 6.2%, and 8.3% of the respondents indicated that the relationship between the facility operators and environmental regulators is poor and excellent respectively; while 9.2% of the respondents are indifferent on the issue.

Moreover, it seem there is a wide spread in the opinions of the respondents regarding the relationship between the facility operators and the environmental regulators as shown on table 4 which exist within the two extremes. However, in spite of these spread, the percentage of those respondents who affirmed that there is positive relationship between operators and regulators is significantly higher than those who indicated negative relationship. This therefore, entails that while the relationship might be stronger at larger quarters some time face challenges. Hence the need to steadily promote mutual understanding between the two sides, as it is a crucial factor in enhancing effective environmental compliance.

3. 5. Procedures of tackling environmental compliance

Various ways have been suggested by the respondents in tackling environmental compliance. Table 5 shows the various ways of tackling environmental compliance.

Table 5. Ways of Tackling Environmental Compliance.

Ways	Frequency	Percentage (%)
Provision of sufficient funds for compliance monitoring	10	20.8
More awareness creation and enlightenment	16	33.3
Collaboration of regulatory agencies (federal & state)	14	29.2
Facilities should be acquainted with relevant regulations	2	4.2
Qualified officers	2	4.2
Silent	4	8.3
Total	48	100

Source: Field Survey, 2015

Distribution in table 5 reveals that 33.3% of the respondents suggested creation of more awareness and enlightenment, followed by 29.2% who affirmed collaboration between the regulatory agencies (federal and state) as a means of tackling environmental compliance. However, 4.2% each of the respondents indicated that facilities should be acquainted with relevant regulations and qualified officers should be involved. While 8.3% of the respondents' maintained silence on the matter. From the forgoing, it has been established that the creation of more awareness and enlightenment is the surest way of tackling the challenges of low environmental compliance as affirmed by the greater proportion (33.3%) of the respondents. This according to them is that when facilities become more aware of the benefits of compliance and the implications of non-compliance, resulting to different environmental problems such as water, air pollution and its adverse effects on human health; no doubt it will go a long way in raising environmental compliance. This is buttressed by Olanrewaju, (2010) who asserted that the best way to tackle environmental crisis of monitoring and enforcement is for the system to be structured in such a way that all stakeholders will be able to play their roles effectively. This contrasts Joel, (2009) who identified that the best way to make firms comply with environmental regulations is that enforcement agencies should make both penalties and the probability of detection high enough that it becomes unprofitable and therefore irrational for regulated firms to violate the law.

4. CONCLUSION AND RECOMMENDATIONS

The study shows that challenges militating against compliance to environmental regulations in the area include: the relationship between the regulatory agencies and the facility operators as reported by 22.9% of respondents who upheld that there is fairly relationship between the facility operators and the regulatory agencies. This therefore, entails that while the relationship might be stronger at larger quarters some time face challenges. More so, the singled most influential factor combining the percentage of both regulators and operators alike for each factor is the lack of awareness of the regulations (52.5%). While the least factor from the combination is lack of awareness/ lack of technical expertise & skills

(10.1%). Consultation between the environmental regulators and the facility operators prior to the introduction of any environmental regulation is a factor in environmental compliance as reported by 37.6% of the respondents (facility operators) who maintained that they are not consulted before introducing any environmental regulation. It has been established that the creation of more awareness and enlightenment is the surest way of tackling the challenges of low environmental compliance as affirmed by the greater proportion (33.3%) of the respondents. This according to them is that when facilities become more aware of the benefits of compliance and the implications of non-compliance, resulting to different environmental problems and its adverse effects on human health; no doubt it will go a long way in raising environmental compliance.

It is on the basis of this general conclusion that the following recommendations are made;

- ✓ There is need to steadily promote mutual understanding between the two sides, as it is a crucial factor in enhancing effective environmental compliance.
- ✓ To effectively promote environmental compliance, there is need to consistently create environmental awareness among the facility operators and the general public in order to become environment conscious and uphold environmental sustainability.
- ✓ Every facility operator should be considered as a stakeholder in drafting environmental regulations. Exclusion of them is tantamount to low level of compliance as they will claim not to be aware of the regulations.
- ✓ Facilities should be provided with guidelines on compliance with environmental legislation. A brief sector-specific explaining the responsibilities of facilities (with a reference to relevant legal and reporting requirements) would assist awareness raising efforts. Such guidelines could be disseminated via contact information of staff/units responsible for specific sectors, facilities, or compliance assistance in general.

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