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Activities of Small and Medium Scale Confectionery Enterprise and Environmental Quality in Adamawa State, Nigeria

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Abstract:

The consequence of confectionery industries' activities on the environment leaves the ecosystem worse-off comparatively. Most of such activities come through the release of waste as well as extraction of forest resources. Environmental degradation has been and continues to be a major factor causing damage to the environment, affecting the land, water, vegetation and all other features that constitute the natural environment. The objective of this study is to assess the impact of the activities of small and medium scale confectionery enterprise and environmental quality in Adamawa state with specific reference to bakeries. The data for the study was obtained using a structured questionnaire administered on a sample of one hundred and fifty (150) members of the public and fifty (50) workers of bakery industries from Mubi and Yola metropolis respectively. The data was subjected to percentage (%) analysis and the Z-test to analyze and test the hypotheses respectively. The result signifies that the bakery's' operators in Adamawa State are not aware of environmental laws and policies; majority of those who claimed to be aware of such laws and policies do not comply with them. They are more concerned with profit maximization than environmental protection. The study recommends that environmental impacts assessment should be made compulsory for industries whose operations have negative environmental impacts. In addition, training programs such as lectures and seminar on environmental management should be organized for the owners and employees of such industries. Wide public relation/publicity should be given to available environmental laws and policies in the state.

Keywords: Confectionery enterprises, environmental quality, environmental degradation, environmental health and environmental protection

1. Introduction

The attention in Small and Medium Scale Enterprises (SMEs) in Nigeria arises from a realisation that SMEs occupy a central place in economic development. This is because they tend to solve the problems of slow growth, unemployment, underemployment, and poverty. Thus, they exert considerable influence on development (Okongwu, 1986; Wiklund, 1998; Okafor, 2000; Aderibigbe, 2001; Ajayi, 2003; Adrangi, Allender, & Anderson, 2003). The Small and Medium Scale Enterprises in turn utilise the available opportunities in the society or their environmental area, to create or develop new products or services, thus adding value to humanity while equally maximising benefits or profits.

The impact of the activities of the Small and Medium Scale Enterprises (SME) on the socio-economic life of Nigeria is quite understandable. In Nigeria, the Small and Medium Scale Enterprises sub-sector has been expanding, especially since the mid-1980s, following the prolonged recession in the economy which forced many large enterprises to lay off large proportion of their work-force (Iyang & Enuoh, 2009). The sector accounts for 70 % of industrial employment (World Bank, 1995). Also the agricultural sector, which largely consists of SMEs, employs over 60 % of the nation work-force (Salami, 2003). SMEs cover wide range of business activities some of which have environmental impacts.

Despite all the contributions of SMEs in the environment, the environment suffers from their activities on a daily basis. These attacks, more often than not, leave the lands, waters, air, vegetation and all other features that constitute the natural environment with damage done to them. This damage reduces the productivity of the environment and even reduces, if not completely extinguishes, the pleasure we can derive from it (Kasum, 2010).

The harm to the ecosystem is either caused by nature or by businesses. The natural ones come in the form of earthquakes, volcanic eruptions, landslides, flood, and drought among others. One of the damages caused by businesses is the indiscriminate release of pollutants into the ecosystem and degradation of the environment. These pollutants take the forms ranging from solid, through liquid to gaseous releases. Another has to do with withdrawals from the ecosystem in terms of

mining and quarrying activities, bush burning, tree felling and other similar practice could also be taken as significant, especially in Adamawa State. Where the former is usually not thought of, in terms of countering its effects on the environment and the people, the latter also is not thought of in terms of replacing lost values to the ecosystem. Sometimes governments are seen to be responding to emergencies that result from these attacks, the natural ones especially. It is important also to take matters of those caused by human kind through businesses very seriously.

Confectionery enterprises' activities contribute significantly to this problem and the effect of those activities is the subject of this study. Although the extractive business is a major contributor to this problem in Nigeria, other manufacturing businesses too are not left out. Even if they are not extracting directly, the manner in which their waste products, raw materials (fire wood), noise, and smoke are managed as in the case Confectionery enterprises could be a source of degradation and pollution. It should be noted that the measurement of annual economic growth and output has been said to ignore declining productivity of soil, forests and fisheries as well as the pollution and degradation of parks, historic sites, wild landscapes and natural ecosystems (Kasum, 2010).

Confectionery enterprise covers a wide range of business activities some of which affects physical environment on a negative basis. For example, the negative physical environmental impacts of businesses are in form of deforestation and pollutions (smoke, waste disposal, by-products, and noise) which lead to environmental degradation. The most important of the environmental changes in this part of the country has been that of man activity, especially grazing, farming, bush burning, wood cutting and other activities such as road construction (Baltimore 1987 as cited in Mayomi, 2009). The knowledge about degradation has become increasingly important as the nation plans to overcome the problems of haphazard, uncontrolled development, deteriorating environmental quality, loss of important wetlands, and loss of fish and wildlife habitat (Mayomi, 2009). Hence, environment needs to be effectively managed in order to be conducive for human habitation and business productivity. Thus, there is need to plan, organise, supervise, monitor and control the environment to suit desired purpose-residential or/and business outfits.

Hence, little attention has been given to the effect of the activities of confectioneries on the environment including the health of the people engaged in such activities and those living around places where such activities are carried out. The augment in number of confectionery enterprises brings into question the extent to which such enterprises take into cognisance the environmental impacts of their activities. Also it is not clear if confectionery enterprises are aware of the pollutions they are releasing into the environment. The Bakeries are among those businesses that have negative environmental impacts. Such impact may include pollutions and deforestation which leads to degradation especially due to the source of raw materials (fire wood) and their location very close to residential buildings respectively. Members of the public are complaining of pollutions, and they are not aware of where to forward the environmental problems due to inadequate environmental policies and laws guiding the activities of Bakeries in the State. Therefore, this study intends to identify the impacts of confectionery enterprises' activities on the environment of Adamawa State.

The major objective of this research is to assess the impact of the activities of small and medium scale confectionery enterprise and environmental quality in Adamawa state with specific reference to bakeries. However, the specific objectives are to:

- Identify and analyse various ways by which confectionery enterprises degrade environment;
- Assess the response of confectionery operators towards environmental protection and health regulations;
- Examine the growing awareness of confectionery enterprises about environmental laws and policies; and
- Assess the impact of confectionery enterprises on environmental pollution.

The following null hypotheses are used for the research:

- There is no significant relationship between activities of confectionery enterprises and environmental degradation;
- The response of confectionery operators toward environmental protection and health is insignificance;
- The growing awareness of confectionery enterprises about the environmental laws and policies is not significance; and
- Confectionery enterprises have no significance effects on environmental pollutions.

2. Literature Review and Theoretical Framework

2.1. Concept of Environment

The concept of environment has been viewed from diverse perspectives and defined in various ways. The variety of definitions and conceptions of environment is closely linked to the fact that the study of environment is multi-disciplinary, and thus each discipline tended to develop and adopt definition(s) in line with its interest. This multiplicity of definitions, concepts and usage of the term in various disciplines was clearly captured by Porteous, (1977) in Daramola and Ibem, (2010) when he Stated that: "the multiplicity of the usage and concept of the term environment have resulted in a variety of adjectival forms which include social environment, molar environment, physical environment, home environment, psychological environment, behavioural environment and geographical environment".

Furthermore, it was perceived by Robbin and Coulter, (2000) as institutions or forces that are outside the organisation and potentially affect the organisation performance. Small and Medium Scale Enterprises can be seen as a system. This is because it is made up of interdependent factors including individuals, groups, attitudes, motives, formal structures,

interactions, goals, status authority (Kenyon, 1993 cited in Itodo, 2009). In view of this, the SMEs' is an open social system that made up of internal and external environments. These reveal that in a classified system; the manager is truly accountable for coordinating the system in order to realise the organisational goals and objectives.

From the above definitions therefore, it is logical to view environment as all physical, non physical, external, living and non living situations surrounding an organization that determine the existence, development and survival of a business organizations and the nation at a particular time.

2.2. Environmental Degradation

Environmental degradation is the deterioration of the environment through depletion of resources such as air, water, and soil, the destruction of ecosystems and the extinction of wildlife. It is defined as any change or disturbance to the environment perceived to be deleterious or undesirable (Johnson, *et al*, 2009) When the environment becomes less valuable or injured, environmental degradation is said to occur. There are many forms of environmental degradation. When habitats are destroyed, biodiversity is lost, or natural resources are depleted, the environment is hurt (Etuonovbe, 2009). Environmental degradation can occur naturally, or through human processes. The largest areas of concern at present are the loss of rain forest, air pollution and smoke.

2.3. Environmental Pollution

This phenomenon occurs whenever potentially harmful substances are released into the environment. Pollution on the whole is caused principally by human activities, though it can also be a natural process. It is usually classed according to the receiving agents of air as emission, water as effluent and land as dumps and disposal (Ukpong, 1994). Pollution can be categorized into three major types: air pollution, water pollution and noise pollution.

2.4. Environmental Protection

Environmental protection definition includes all available practices used to protect the environment, whether on individual, organizational or global (international) level. Environmental protection is a practice of protecting the environment, on individual, organizational or governmental level, for the benefit of the natural environment and (or) humans. It can also be defined as the measures taken by an enterprise whose primary aim is to collect, process, reduce prevent eliminate the emissions, waste or other environmental hazards caused by its activity (OSF, 2011).

Therefore, from several definitions given above, it logical to conclude that environmental protection is an action designed to look after the environment and protecting it from damage caused by human or industrial activities. Due to the pressures of population and the technology the biophysical environment is being degraded, sometimes permanently. This has been recognized and governments began placing restraints on activities that caused environmental degradation.

Some environmentalists even say that the environmental protection has become a lost cause because environmental problems keep on growing at rapid pace, giving us a zero chance to do something about it. Calling environmental protection a lost cause is going too far because as long there is at least one healthy environment left in the world, environmental protection has its purpose, and is not completely useless as some may think it is. Without the environmental protection the environment would look much worse than it looks today, and we certainly must look for more ways to protect the environment. Because of their impact on the environment, businesses have an obligation to try to mitigate the effects of their activities in an effort to protect the land and water resources. Many businesses act voluntarily to reduce their environmental impact. Businesses that use or produce hazardous waste are mandated by law to regulate their businesses. In any case, reducing their environmental impact is a sensible approach to business that can have many benefits. Such benefits according to Rogers, (2009) include:

- Businesses benefit by protecting the environment through cost savings. An efficiently run business that generates minimal waste saves money.
- A business that is conscious of its role in the environment creates environmental awareness in its employees, providing additional benefits.
- Businesses which follow green practices portray a good message to consumers who may be more likely to support a business that considers its role in the environment.

2.5. Environmental Health

Environmental health is a branch of public health concerned with all aspects of the natural and built environment that may affect human health. Other phrases that concern or refer to the discipline of environmental health include environmental public health and environmental health and protection. The field of environmental health differs from environmental science in that environmental health is concerned with environmental factors affecting human health whereas environmental science is concerned with the environment as it affects ecosystems. "Environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, and genetics (World Health Organization, 2007)"

Environmental health is defined by the WHO (2007) as “those aspects of the human health and disease that are determined by factors in the environment”. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health. Environmental health as used by the WHO Regional Office for Europe, includes both the direct pathological effects of chemicals, radiation and some biological agents, and the effects (often indirect) on health and well being of the broad physical, psychological, social and cultural environment, which includes housing, urban development, land use and transport.

2.6. Theoretical Framework

It could be deduced from Middleton, (1995) submission which particularly refers to uniting, that there could only be theoretical justification for the removal of resources from environment in the comparative benefit of the removed resources and in the ability to ensure that the environment is generally not worse off. The benefit from mining, according to him must be worth the impact of mining on the environment and damages done to the environment if the environment could be restored.

With particular respect to corporation activities, social contract theory and quality of life theory from the work of (Ramanathan, 1976), explained the relationships. Social contract theories view the company as an integral part of the society that the society supports and is expected to follow the law of that society. In line with this, it is expected that they contribute to the society proportionately enough to what the society has given to them. Quality of life theory is about the expectation of society. ‘Unrestrained economic development...evident from environmental pollution and social ills triggered society’s negative attitude towards industrialisation’. Industrialisation tends to be associated with environmental pollution and social ills and therefore seen to reduce quality of life and increase social costs. The extent to which an organisation balances back the quality of life of people in the environment where it operates is a good yard stick for measurement here.

3. Research Methodology

For the purpose of this survey study, the population of the study are sixty (60) Bakeries registered with National Agency for Food and Drug Administration and Control (NAFDAC) in Mubi and Yola Metropolis Adamawa State, and the members of public. The sample size is thus, given below using Yamani formula for determining sample size: $n = \frac{N}{1+N(e)^2}$

where: n =sample size, N =population size, and e = error margin. Stratifying using proportional allocation formula: $n_i = \left\{\frac{N_i}{N}\right\}n$ for $i = 1, 2, \dots, K$ (1)

Where: N =population size and n = stratified random sampling. Therefore, the sample size of this survey are two hundred (200) selected, stratifying twenty (20) and thirty (30) Bakeries as well as sixty (60) and ninety (90) members of the public both from Mubi and Yola Metropolis respectively. The survey used both quantitative and qualitative method of research. The data collected were analysed, summarised, and interpreted accordingly with the aid of descriptive statistical techniques such as frequency distribution and percentage analysis. The Z-statistic test is used in testing hypotheses. By using a significance level of $\alpha=0.05$ we shall have two critical values which will be located towards both ends the distribution to constitute the critical regions. These critical values are given in terms of Z values and are usually read from the table of normal curve. The critical values of Z at α level of significance for a two sided test is given by $\pm Z_{\alpha/2}$ where $-Z_{\alpha/2}$ and $+Z_{\alpha/2}$ are located at the left and right tails of the distribution respectively. The acceptance region of this test is given by $-Z_{\alpha/2} \leq Z \leq Z_{\alpha/2}$ and critical regions are given by $-Z_{\alpha/2} > Z > Z_{\alpha/2}$. If the empirical Z falls within the acceptance region we accept the H_0 , otherwise, we reject the, H_0 and accept H_1 .

4. Data Presentation, Analysis and Findings

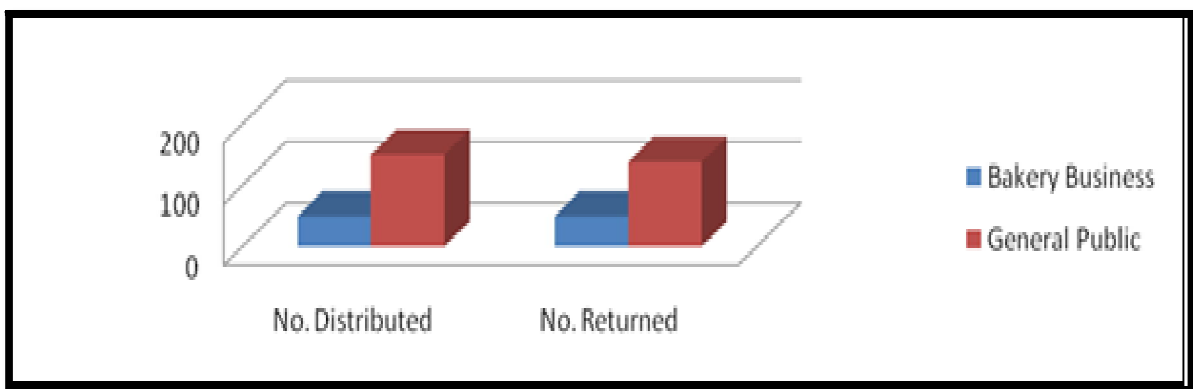


Figure 1: Structured of Distributed Questionnaire
Source: Field Survey, 2017

From Figure 1 above, fifty (50) structured questionnaires were distributed to confectionery (bakery) businesses out of which the same number (100%) were returned, and one hundred and fifty (150) were administered to general public out of one hundred and thirty eight (138) that is 92% both from Mubi and Yola Metropolises of Adamawa State.

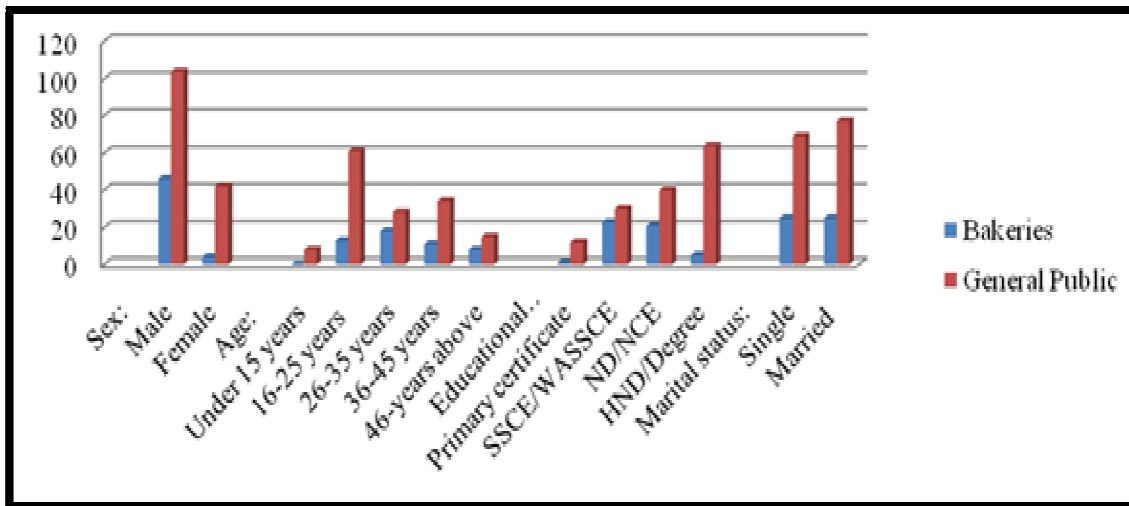


Figure 2: Personal Details of Respondents
Source: Field Survey, 2017

In the case of bakery business, the personal details of the respondents covered sex, age, educational qualifications and marital status. The data in Figure 2 above reveals that males consist of 92% for and females 8%. It also shows in the table that majority of the respondent are between the ages of 26-35 years old (36%), 26% are between 16-25 years, 22% are between 36-45 years and 16% are 46 years and above. In the area of qualifications the majority (46%) of the respondents are SSCE holders. The implication of this is that most of the respondents are males, falls within the youthful age and has little knowledge.

In the same category for the general public, the personal details of the respondents covered sex, age, educational qualifications and marital status. The data in Figure 2 above reveals that males consist of 71% for and females 29%. It also demonstrate in the table that majority of the respondent are between the ages of 16-25 years old (42%), 23% are between 36-45 years, 19% are between 26-35 years and 10% are 46 years and above. In the area of qualifications the majority (44%) of the respondents are HND/Degree holder.

4.1. Test of Hypotheses

The following hypotheses are tested for the research.

N			146
Normal parameters	a, b	Means	2.25
		Std. Deviation	.885
Most extreme		Absolute	.348
Differences		Positive	.216
		Negative	-.348
Kolmogorov-Smirnov Z			4.210
Asymp. Sig. (2-tailed)			.000

Table 1: One-Sample Kolmogorov-Smirnov Test of the Relationship between Confectionery Enterprises and Environmental Degradation in Adamawa State
a. Test Distribution Is Normal
a. Calculated from Data

Using a significance level of α at 0.05 we reject the null hypothesis thereby accepting the alternate hypothesis that says there is significance relationship between confectionery enterprises and environmental degradation. This implies that activities of confectionery seriously degrade environment in Adamawa State via source of raw materials like fire wood where people are cutting of trees unnecessary and pollutions.

N			50
Normal parameters	a, b	Means	1.50
		Std. Deviation	.763
Most extreme		Absolute	.404
Differences		Positive	.404
		Negative	-.256
Kolmogorov-Smirnov Z			2.856
Asymp. Sig. (2-tailed)			.000

Table 2: One-Sample Kolmogorov-Smirnov Test of the Response of Confectionery Operators towards Environmental Protection in Adamawa State

a. Test distribution is normal

b. Calculated from data

With a significance level of α at 0.05 we reject the null hypothesis. Thus, accepting the alternate hypotheses that state; the response of confectionery operators toward environmental protection is significance. Hence, the confectionery operators have optimistic response toward Environmental protection. In order words, it reveals that the operators highly consider environmental protection as meaningfully activities.

N			50
Normal parameters	a, b	Means	2.78
		Std. Deviation	.5507
Most extreme		Absolute	.488
Differences		Positive	.332
		Negative	-.488
Kolmogorov-Smirnov Z			3.450
Asymp. Sig. (2-tailed)			.000

Table 3: One-Sample Kolmogorov-Smirnov Test of the Awareness About Environmental Laws and Policies in Adamawa State

a. Test Distribution Is Normal

b. Calculated From Data

Using a significance level of α at 0.05 we reject the null hypothesis. Thus, accepting the alternative hypothesis means that the growing awareness of confectionery enterprises about the environmental laws and policies is significance. In order words the level of awareness of confectionery operators about environmental laws and policies is adequate.

N			146
Normal parameters	a, b	Means	2.58
		Std. Deviation	.1618
Most extreme		Absolute	.233
Differences		Positive	.233
		Negative	-.164
Kolmogorov-Smirnov Z			2.818
Asymp. Sig. (2-tailed)			.000

Table 4: One-Sample Kolmogorov-Smirnov Test of the Effects of Confectionery Enterprises on Environmental Pollutions in Adamawa State

a. Test Distribution Is Normal

b. Calculated From Data

With a significance level of α at 0.05 we reject the null hypothesis thus, accepting the alternate hypotheses that state, Confectionery enterprises have significance effects on environmental pollutions. This implies that the confectionery enterprises in Adamawa State have contributed immensely to environmental pollutions (i.e. noise, smoke, water and land) which also result into degradation.

According to respondent all these regulations are applicable to any businesses in Nigeria and they federal laws, polices or regulators even though there State laws and polices but in the case of Adamawa State there are not; these regulations are not also localized. Based on the analysis, the bakery operators are not aware of such regulators due to inadequate awareness and publicity on the environmental issues in the State. An effort has not been made enlighten the operators about the laws and polices. These agencies are only in theory, not practical in nature.

4.2. Summary of the Findings

The following are the major findings of this study: Based on the analysis, the bakery operators are not aware of such regulators (Environmental Regulatory Agencies) due to inadequate awareness and publicity on the environmental issues in the State. An effort has not been made to enlighten the operators about the laws and policies. These agencies are only in theory, not practical in nature. Further investigation revealed that those who claimed to be aware of the laws and policies were not really aware of such policies since they fail to explain some of the provision of the law. Also the environmental sanitation is not regarded as a policy that ensure effective environmental product in the bakery business in Adamawa State. It was also revealed that, the operators are more concerned with profit maximization than environmental protection; indifferent attitude towards environmental protection affects the health of workers in bakery businesses and the operators of the businesses do not carry out environmental impact analysis of the activities of their business.

The above results are in agreement with the enforcement findings of the federal environmental protection agency. The findings of their compliance monitoring in Nigeria's businesses in 1995 show that out of about 1000 inspections carried out, only 18% compliance has been achieved (Odubela & Omoniyi, 1995). The 18% compliance recorded was mainly in large scale businesses. Oladije (1988) advocate the view that low level of compliance is related to lack of awareness when he asserts that 'the job of creating awareness for environmental protection and sustenance has remained ad hoc, irresponsible and predictably boring. Compliance can only be guaranteed when sufficient efforts are made to publicize and convince people who understand the significance of compliance. People in Adamawa State engage in different economic activities in order to improve their quality of life. As they seek to improve the quality of their lives, there is also a need to protect the environmental system which is also the foundation of the well beings. Bakery businesses covers wide ranges of business operations, which some of them have pessimistic environment impacts. These impacts include industrial pollutions. Increase in the number of businesses might lead to strengthen industrial pollution particularly if environmental laws and policies are not adhering to.

An additional major concern is the location of businesses that have pessimistic environmental impacts very close to residential building, food markets and major roads. This added significantly to air, water, land and noise pollutions which causes very serious health problems. It should be noted that many of the harmful effects of SMEs can be mitigated or reduced without threatening the viability and growth of the business (Environmental Literacy council, 2005) cited in Okwuise, (2008). The wastes encountered in the bakery businesses include ashes, charcoal, and liquid. The combustion of such wastes contributes environmental degradation. Pollutions resulting from these wastes are dangerous to human health. The argument of the research is that effective resource management is very important not only to political and economic activities but also to environmental stability. It is also reiterated that a major solution to environmental crises is to promote environmental awareness strategies.

5. Conclusion

It is flattering increasingly evident to government and policy makers that the role of Small and Medium Scale Enterprises (SMEs) is very important to the development and growth of Adamawa State. Small and medium scale enterprises (SMEs) play a marvellous role in their day-to-day operations. They provide employment opportunities, generate revenue for the government, alleviate poverty, ensure efficient utilization of local resources, mobilisation of domestic saving and investment, and many more.

Regardless of all the contributions of SMEs in the environment, the environment suffers from their activities on a daily basis. Though the businesses considered in this study do have both positive and negative impacts on the environment. The positive impacts are more in the nature of social services to their host communities and job opportunities for the country. However, of greater importance to this study are the negative impacts of the selected businesses on land and human beings. Environmental pollution of environmental elements resulting from unrestrained activities of the bakery businesses has impacted negatively on environment of Adamawa State that also results into environmental degradation.

In spite of the vital role small and medium scale enterprises play in economic growth and development, efforts should be made to guarantee that their activities do not risk our environment. This can be ensured if suitable actions are taken to guarantee strict conformity with environmental laws and policies. Environmental impact assessment should be made obligatory for SMEs whose activities have pessimistic environmental impacts.

5. Recommendations

In order to protect the environment from the adverse effects of bakery businesses, a number of mitigation measures and management options that should be implemented are hereby recommended:

- The utilization of the best available technology; payment of optimal liability compensation to local communities and institutionalization of adequate abatement measures be adopted.
- The manufacturing processes should be designed to maximize recycling potential and minimize the generation of wastes. For example, new low and non-waste technologies which can reduce environmental impacts should be adopted.
- Environmental impact assessment should be made compulsory for businesses whose activities have negative environmental impact.

- Training programs on environmental management should be organized for operators and owners of bakery business in the State for example seminar on environment management. Various motivations should be used to encourage polluting businesses to adopt environmental management strategies. The possible motivations include provision of more favourable interest rates and repayment schedules, or the promise of future loans (Feoli, 1995).
- Micro finance institutions should encourage environmental protection by requesting their clients who want financial assistance to describe the general environmental effects of the businesses and strategies to minimize such effects.
- To this end, environmental education such as public enlightenment campaigns in the mass and print media, churches, mosques, and community-based organizations is highly needed.

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