

Management of Environmental Hazard in Textile and Clothing Production in Uyo Local Government Area

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ABSTRACT

The purpose of the study was to investigate the management of the environmental hazard involved in textile and clothing production in Uyo Local Government Area of Akwa Ibom State, Nigeria. The study was prompted by the fact that textile and clothing producers are exposed to wide variety of hazard due to production activities. Besides limited studies had been undertaken to address the management of the environmental hazard in textiles and clothing production in Uyo Local Government Area. Five research questions and three hypotheses were raised to guide the study. The sole consisted of 122 textile and clothing producers/workers. The data was using a structured questionnaire titled "Management of Environmental Hazard of Textile and Clothing Production (MEHTCP)". It had five sections, frequencies, percentages, mean, standard deviation as Pearson's Correlation Analysis was used to analyze the data and the hypothesis tested at 0.05 level of significance. The result of the finding showed that there is no significant effect of workers/Producer of textile and clothing and the safety measures to manage the hazard on the workers/producers of textile and clothing and the safety measures to manage the hazard (-0.026, -0.035, 0.003 respectively). Study the textile and clothing producers should be exposed to the new technologies of safety through workshops, training, seminars and reading of articles; The Industry manager and directors should be considered to the workers' health and safety to observe safety rules operation; The occupational health and safety agent should be monitoring the industries to ensure the safety of the workers and the environment.

KEYWORDS: Management, Environmental Hazard, Textile, Clothing Production, and Uyo Local Government Area

Introduction

Textile is manufactured from natural fibers, such as wool, cotton, flax silk and man-made fiber such as nylon, rayon among others. The key steps in the value chain of the textile industry are yarn manufacture, fabric production wet processing. Making use of raw fibers are converted into yarn by grouping and twisting operation used to band them together. Unlike man-made fibers, a natural fiber from natural origin has to be cleaned intensively from impurities first, as one of the steps in textile manufacturing.

Textile is any filament, fiber of yarn that can be made into fabric or cloth and resulting material itself (Britannica 2016). Textile is a flexible material which consist of a network of natural and artificial fibers (yarns or thread), textile are formed by weaving, knitting, crocheting, knotting or tating, felting or braiding (Ibokette 2016). Textile product plays vital role in meeting man's basic needs. However, textiles are very important in all aspect of lives from birth to death. Textile and clothing are something that we cannot do without.

Statement of Problem

The Textile Industry is a significant contributor to many National Economic encompassing both small and large scale operations worldwide. Textile products play a vital role in man's basic needs. In terms of its output or production and employment, the textile industry is one of the target industries in the world. Textile processing generates many waste streams, including liquid, gaseous and solid waste, some of which may be hazardous. The nature of the waste generated depends on the technology being operated and the type of fibers and chemicals used.

It has been shown that users of textile laboratories are exposed to hazards (Cheesbrough, 2015). There is an increasing rate of environmental degradation in Uyo due to indiscriminate discharge of industrial effluents and chemicals in the environment. For instance, Industrial affluent in Uyo are indiscriminately discharged to land and moving streams thereby causing pollution and harm to human and aquatic lives. In most cases, the chemicals and industrial waste are discharged to roads while it eventually results to road damage and consequently expose road users to danger of accident.

Effective safety management of clothing and textile laboratories is very necessary for effective production and safety of individuals concerned in the use of the laboratories or industry.

Objective of the Study

Primary objective of this study was to investigate the management of the environmental hazards in textile and clothing production in Uyo Local Government Area.

Specifically, the study

1. Determine the environmental hazards involved in textile and clothing production.
2. Determine the effect of hazards on textile and clothing workers in the Industry.
3. Determine the safety measures or techniques of the hazards management in textile and clothing production.
4. Determine the socio-economic factors influencing the management and practices of textile and clothing production.

Literature Review

Textile Industry is the significant contributor to many National Economics encompassing both small and large scale operations worldwide. In terms of output or production and employment, textile industry is one of the largest industries in the world. Textile studies are vocational subjects courses and ensure capabilities for providing entrepreneurship opportunities in different clothing area for it's recipient (Adebayo, 2018).

Textile programme in Nigeria Universities is made up of the following: Textile studies, Textile design, Textile production, clothing design, pattern drafting, clothing production and clothing maintenance. The clothing component is concerned with knowledge, skills and attitude needed to design and construct clothing, while the textile components desks with knowledge of different textile principles and clothing selections and maintenance (Igbo, 2013). The textile industry comprises a diverse and fragmented group of establishments that produce and (or process related products fiber, yarn and fabric) for further processing into apparel, home furnishing and Industrial goods. Textile have important role in our daily lives. This forms are needed for general knowledge of textiles.

Textile manufacturing entails exposure that is possible carcinogenic (Substance that cause cancer to humans). In addition, from the machines causes the vaporization of organic compounds used in finishing such as coating of fabrics. According to (Slates, 2015), these organic compounds are carried as airborne gases and must be controlled to reduce environmental pollution. It is notable that energy process and almost every operation within the textile laboratory or factory has an environmental aspect that should be considered and for which the environmental performance can potentially be improved.

Environmental Protection Agency (EPA) 2020 stated that hazardous wastes from Textile production industries are poisonous by products of textile manufacturing process. They may be liquid, solid or sludge and contain chemicals, heavy metals, radiation, dangerous pathogens, or other toxics. Exposure of the waste through leakage, evaporation or shortage to the environment can cause adverse effects and spell disaster for aquatic life and the soil. Papa and Tokat, 2018. This research is on the management of Environmental hazards in textile and clothing production in Uyo Local Government Area of Akwa Ibom State.

Methodology

This is concerned with the description of plan, strategy and design for the study. It describes the procedures followed in realizing the goals and objectives of the research. This study carried out in Uyo Local Government Area, one of the thirty-one (31) Local Government Area of Akwa Ibom State. The population of the study constituted 122 technicians from 13 companies/industries (enterprise) in Uyo Local Government Area. A Survey research design was adopted for the study. This is a statement for collecting information or data as reported by individual survey are questionnaires (or a series of questions) that are administered to research participants who answer the questions themselves. Ponto (2015) stated that survey research can use quantitative research strategies using questionnaires with numerical rated items, qualitative research strategies using open-ended questions, or both strategies for data collection. This design measured variables by asking questions and then examining relationship among variables. For this research, survey design helped to capture the factors that influence the production of clothing and textiles. The rationale behind the use of survey design is that survey makes the efficient collection of data on large numbers of individuals possible. (Sutton, 2010).

A multi-stage sampling procedure was used in selecting the sample for the study. The first stage involves the Simple Random Selections of 12 industries/companies. The selected industries/companies (Enterprises) were in Uyo Local Government Area. The selected industries/companies (Enterprises) were Home Economics Department, University of Uyo, Federal Ministry of Industry, Industrial Development Centre, Federal Ministry of Science and Technology, Business Incubation Center, Akwa Ibom State Ministry of Science and Technology, Akwa Ibom State Life Enhancement Agency, Skills Development Centre, Ikpe Ikot Akpan Youth Skills Development MPCS Ltd, De Chre Business Ventures, Emmy "A"

Ventures Nigeria, Access Business Ventures, Yewool Business Ventures, Wynn Brunnu Nigeria Ltd and Chresu Business Ventures.

The technicians were randomly selected to represent 122 respondents, this result in preparing a total of 122 questionnaires for they were randomly representative of the population are size were administered structured questionnaire to all the return same day. All the questionnaires were filled and returned and non was missing or incompletely filled.

The second stage was the selection of technician or workers from the industries/companies. Each technician was randomly selected from all the industries/companies to represent 122 respondents for the study. To arrive at the sample size, 10% of the population of the workers was used.

For each industry/company the workers were randomly selected to represent 122 respondents for the study. This resulted in preparing a total of 122 questionnaires for the study. The randomly selected workers' representatives of the population area and size were administered structured questionnaire to fill and return same day. All the questionnaires were filled and returned, and none was missing or incompletely filled.

Instrument for Data Collection

A research Instrument titled "Management of Environmental Hazard of Textile and Clothing Production (MEHTCP)" with fine different selection and adequate instructions was used for the study.

Reliability of the Instrument

To ensure that the survey Instrument was reliable, it was subjected to a test-retest reliability test. This involves the distribution of ten (10) questionnaires to ten (10) workers who filed and returned them on the spot. After one week, another set of questionnaires with the same items were administered to the same ten (10) workers which they filled and returned. The results were analyzed using Pearson's Correlation Analysis. The result of the analysis portrayed a correlation coefficient of 0.84 which indicated that the Instruments were reliable.

Results and Discussions

This presents the results of the analysis of the data collected for the variables under the study. It also discusses the findings of the study. They include variables for Textile and Clothing Producers.

Research Question One: What are the hazards involved in Textile and Clothing Production?

Table 1: What are the hazard involved in Textile and Clothing Production

S/N.	ITEMS.	X	SD	REMARK
1.	Environmental hazards associated with Effluent discharge.	3.38.	0.77	A
2.	Environmental hazards associated with textile and clothing in the Industry.	3.47.	0.72	A
3.	Various waste chemicals and toxic substances generated at the various stage in Textile and Clothing Production.	3.53.	0.68.	A
4.	State the general view of the process of clothing Production.	3.40.	0.69.	A
5.	Environmental hazards Management in associated in clothing and textile production process or activities.	3.40.	0.69.	A

6.	Waste generated into the air emission, waste water and residual waste from textile industry.	3.66.	0.51.	A
7.	Various wastes and chemicals generated from clothing and textile industries	3.39.	0.67.	A
8.	Chemical composition of the waste generated in textile production process.	3.27.	0.75.	A
9.	Possible effects of poor chemical discharge of laboratory waste to human lives.	3.72.	0.52.	A
10.	Take the basic laboratory equipment management and care.	3.67.	0.55.	A
11.	Good using or handling of laboratory equipment when in clothing and textile laboratory (Workshop).	3.53.	0.52.	A
12.	Keep adequate ventilation and lighting of clothing and textile laboratory or workshop.	3.34.	0.68.	A
13.	Take out biological treatment effluents or discharge from clothing and textile laboratory.	3.48.	0.81.	A
14.	Explain the normal space requirement of a standard clothing and Textile laboratory.	3.46.	0.61	A
15.	Mention environmental advantages of chemical hazard management in clothing and Textile Industry.	3.91.	0.59	A
16.	Execute the basic activities in of textile process in Textile Industry such as desizing, dyeing, mercerizing, bleaching, printing, finishing etc.	3.41.	0.92.	A
17.	Explain the environmental disadvantages of Chemical effluents or discharge from clothing and textile laboratory.	3.18.	0.92.	A
18.	Environmental hazards estimation and Evaluation of textile industry effluents.	3.97.	0.18.	A
19.	Explain drafting pattern and tie-up process	3.20.	0.94	A
20.	Execute a chemical recovery from the Textile waste before discharge to environment.	3.85.	0.53.	A
21.	Describe harness construction association with the shuttle flow.	3.56.	0.67.	A
22.	Explain the hazards associated in Beaning.	3.29.	0.91.	A
23.	Describe the effect of tie-up to weaving.	3.34.	0.85.	A
24.	List the effect of missed dent to fabric.	2.84.	0.91.	A

Source: Field Survey, 2021

A = Agreed, X = Mean, SD = Standard Deviation

The result in Table 1, shows that the respondents agreed to all the items concerning the hazards involve in textile and clothing production. This is confirmed by the mean response of above 2.5 (Cutoff mean response).

Research Question Two: What are the effects of hazards on textile and clothing workers/producers in the Industry.

Table 2: The effects of hazards on textile and clothing workers/producers in the Industry

S/N.	ITEMS.	X.	SD.	REMARK
1.	Respiratory problems, due or exhaust	3.84.	0.36.	A
2.	Allergies due to excessive dust or poor ventilation	3.15.	0.64.	A
3.	Eye problem due to low light for working and lack of protective glasses.	3.11.	0.67.	A
4.	High blood pressure due to too much noise	3.91.	0.29.	A
5.	Eye problem due high beam of light.	3.58.	0.71.	A
6.	Bruises on the leg by hitting with the pedals.	3.39.	0.74.	A
7.	Jen well-constructed and finished.	3.57.	0.70.	A
8.	Byssmosis problems from weaving and spring Mills	3.48.	0.74.	A
9.	Vibration from the machines.	3.59.	0.65.	A
10.	Heat and cold stress from the machine.	3.65.	0.63.	A

Source: Field Survey, 2021

A = Agreed, X = Mean, SD = Standard Deviation

In Table 2, the result shows that all the items on the effect of hazard on workers of textiles production were agreed to by the response. This shows that all the items in the above table were affected in the clothing and textile Procedures.

Research Question Three: What are the safety measures to techniques of the hazards management?

Table 3: The safety measures to techniques of the hazards management

S/N.	ITEMS.	X.	SD.	REMARKS
1.	Use of effluents treatment plants (ETP).	3.54.	0.82.	A
2.	Use of chemical chimney go the safety of Environment.	3.16.	0.10.	A
3.	Use of functional finishes to protect Environment	3.31.	0.86.	A
4.	Use of more air dyeing technology.	3.87.	0.81.	A
5.	Use of organic cotton products to safe the Environment.	2.40.	0.81.	A
6.	Use of bio scouring and bleach.	3.50.	0.63.	A
7.	Use of marks and safety wears for the Safety of workers.	3.51.	0.75.	A
8.	Use of potato and cellulose based sizing techniques to protect both environment and workers health.	1.79.	0.94.	D
9.	Modify the faulty machineries	3.04.	0.75.	A
10.	Use of earplugs and thimble for the Safety of workers.	1.59.	0.84.	D
11.	Use cotton gloves when winding yarns.	1.84.	0.90.	D

Source: Field Survey, 2021

A = Agreed, X= Mean, SD = Standard Deviation

The result shows that the respondents accepted items (1-4, 6-7, and 9) while items (5, 8, 10 and 11) the use of cotton gloves when winding yarns and wear stockings weaving on the

loom were disagreed to. Those items had the mean response less 2.5(cutoff mean response mark).

Research Question Four: What are the socio-economic factors influencing the practices of the clothing and textiles production?

Table 4: The socio-economic factors influencing the practices of the clothing and textiles production

S/N.	ITEMS.	X.	SD.	REMARKD
1.	Cost of the item.	3.36.	0.90.	A
2.	Amount of money available.	3.43.	0.91.	A
3.	Your Age	3.00.	0.76.	A
4.	Level of Education.	2.90.	0.86.	A
5.	Family Size.	2.55	0.75.	A
6.	Occupation.	2.96.	0.83.	A
7.	Location (urban or rural).	2.90.	0.89.	A
8.	Social status of textile producers	3.03.	0.62.	A
9.	Income.	3.07.	0.83.	A
10.	Religion.	2.52.	0.88.	A
11.	Labour condition.	2.99.	0.77.	A

Source: Field Survey, 2021

A = Agreed, X = Mean, SD = Standard Deviation

The result in Table 4, shows that the respondents agreed to all the items on the socio-economic influencing the practices of the clothing and textiles production.

Recommendations

Based on the study, the following recommendations are made:

1. The textile and clothing procedures should be exposed to the new technologies of safety through workshops, training, seminars and reading of articles.
2. The Industry manager and directors should be considerate to the workers' health and safety to observe safety rules operation.
3. The occupational health and safety agent should be monitoring the industries to ensure the safety of the workers and the environment.
4. Government and school practicing the productivity of the clothing and textile should be ensure and maintain the safety practice.

REFERENCES

- Adebayo, M.O. (2018). Quality of teaching of clothing textile to self-employment expectation in Nigeria. A paper presented at the National conference of Home Economics Council of Nigeria (HE ON) at Ebonji State University Abakiliki.
- Alli, B.O. (2001). *Functional Principles of Occupational Health and Safety*. Geneva: International Labour Organization (OIL)
- Arimoro, (2021). *Entrepreneur handbook Ltd*. All rights reserved. Registered offices at 20-22 wenlock Road, London, N17GU, United Kingdom.
- Briggs D. (2001). "Health Impact Assessment of Waste Management Facilities in Three European Countries". *Environment Health: A Global Access Science Source to Supply* (1): 53-65
- Britannica, (2001) www.britannica.com
- Britannica, (2021). *Encyclopedia Britannica*, Inc Editor of Encyclopedia.
- Burge, P.L and Steady, D.L (2016). Recruitment of Home Economics teacher. *Journal of vocational Home Economics Education*, 9,1-9.
- De Gruyter, (2016). *Textile Processing*. Textile Engineering Tanveer Hussain.
- Elisha, (2021). Study.Com, DMCA- Technical textile.study.com...Humanities courses.
- Ellington, (2016). Royal college of Arit, Kensington Gore, London.
- Environmental Protection Authority EPA (2020).
- Foss, Sebastian, (2021): *Apparel and Textile Production* 11 Merrill Industrial Drive Hampton; NH 03842 United States.
- Igbo, C.A. (2016). *An introduction to fibre and yarn studies: A pragmatic Approach to Textile Production* Enugu: Inselbog Nigeria Limited.