

The Level of Awareness of Industrial Effluents Hazard among Communities Living in Challawa (Yanda'ngo Village) Kano-State Nigeria

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Abstract

An industrial effluent is known to create health hazard to the people's nature living near due to the presence of heavy metals and other pollutants which is failing to recognize the prospect for environmental protections. These pose a severe environmental degradation which includes atmospheric pollution, flora and fauna pollution, which result to problems of waste disposal and its management. This work intends to create awareness to the people living in Yanda'ngo village area of Challawa on the health hazard cause by industrial effluents. A field surveyed was conducted through questionnaire designed by interviewing 400 peoples of which 50 were labourer, 100 were farmers, 50 were sand miners, 50 were fishermen and 150 were local people. Interviewed were carried out on age, education standard, environmental pollution awareness, human diseases, occupation, waste type and colour, effect on environment and fisheries production. Based on the findings, it showed that 50% of the inhabitants were not educated. Industrial waste (solid and liquid) emanated from tanneries and textile of which 70% come from tanning industries and 30% from textile. At least 45% of the respondents reported that the predominant environmental health hazard was due to malodorous to the community people and this cause health problem such as skin diseases, cough, headache, dizziness, fever etc. as result of poor environmental management. The optimum respondents (55%) had low awareness on the health hazard cause by industrial effluents due to their education level, 75% reduction in fish production. This survey will be of significant interest to create awareness to the people living in Yanda'ngo village on environmental pollution and the effect of industrial effluents.

Keywords: Awareness, industrial effluent, health hazard, environmental pollution, environmental management and malodorous.

1. Introduction

The environment is under increasing stress from solid and liquid waste coming from the tanning industries and textile. These are inevitable by-products of the leather and garment manufacturing process and cause severe pollution to the environment unless treated in some way prior to discharge. Liquid and solids waste are released into the sewage systems (indirect discharge) where it undergoes full scale treatment before returned to the environment via surface waters. The wastes (solid and liquid) that is coming out from industries, tannery effluent constitute higher percentage of pollutants ^[1]. If effluent is discharge direct into soil, streams and rivers, it needs to be of higher quality as the environment is sensitive and highly susceptible to damage. ^[13]

Industrialization had made an immense positive contribution to health, including personal and

social wealth, as well as vastly improved health and education services, transportation and communication. Environmental health hazards may be of biological, chemical, physical, biomechanical or psychological in nature. Environmental hazards include traditional hazards of poor sanitation, agricultural and industrial contamination of air, water, food and land. These hazards have resulted in a host of health impacts ranging from catastrophic direct effects.^[5]

There are undeniable countless other examples of environmental disease outbreaks, some of which are not easily detectable on the macro statistical level, over a billion people in the world lack access to safe drinking water and over 600 million are exposed to sulphur dioxide that exceeded the threshold limit^[12]. Moreover, the pressures on agriculture and food production as the population and per local demand increase will probably lead to a greater burden on the environment.^[6]

Environmental health impact includes the indirect effects of industrial disruption of adequate food and housing as well as the degradation of global systems on which the health of the planets depends. Large scale of agricultural practises and constant application of toxic pesticide and insecticide are major health hazard for workers and their households, pollution caused by fertilizer, biological waste from the food processing industries, paper factory, tannery industries and so on also create harmful substances on waterways, reducing aquatic organisms and food supplies.^[6, 12]

The awareness of environmental health hazards has often come from observation of adverse health result among workers, and noticeably in the workplace that the impact of industrial exposure is well understood. The traditional health threats in developing countries or in poor section of any country include poor sanitation, water and food which spreads communicable diseases, poor housing with high exposure to cooking smoke and high fire risk as well as high injury risks in small scale agriculture or cottage industries.^[5]

In recent development era and due to rapid growing urbanization, the quality of land water is being deteriorated by mixing up of industrial discharge and wastes and domestic sewage in our rivers^[2]. Especially in urban areas, the careless disposal of industrial effluents and other wastes contributes greatly to the contamination of the water^[7]. Rapid increase of pollution load in fresh water bodies increases the nutrient level of water^[9] and causes a violent alteration in pH, reduction in oxygen content and high osmotic pressure.

2. Materials and Methods

The study was carried out at Yanda'nko village which is situated in Panshekara area of Challawa (Lat.11°52' 41"N, Long.08° 28' 09"E) 515m above sea level. It is located in Kumbotso Local Government area of Kano (Lat.11°59' 18.3" N, Long.08°32' 05.8"E) 418m above sea level. Kano State occupies central position of Northern Nigeria. Industrially; it is one of the predominant commercial cities in Northern Nigeria in which tanneries and textile are the common industries. Yanda'nko village lies at the bank of industrial effluent drain and River Challawa (fig.1)

The population of citizen residing in the area is about five hundred according to 2006 population census^[8], a total number of four hundred inhabitants were interviewed by adopting open and closed questionnaire pattern of which 50 were labourer, 100 were farmers, 50 were sand miners, 50 were fishermen and 150 were local people. Interviewed were carried out on age, education standard, environmental pollution awareness, human diseases,

occupation, waste type and colour, effect on environment and fisheries production. The data were analyzed by the Microsoft Excel program to find out the % of total data, mean and standard deviation.

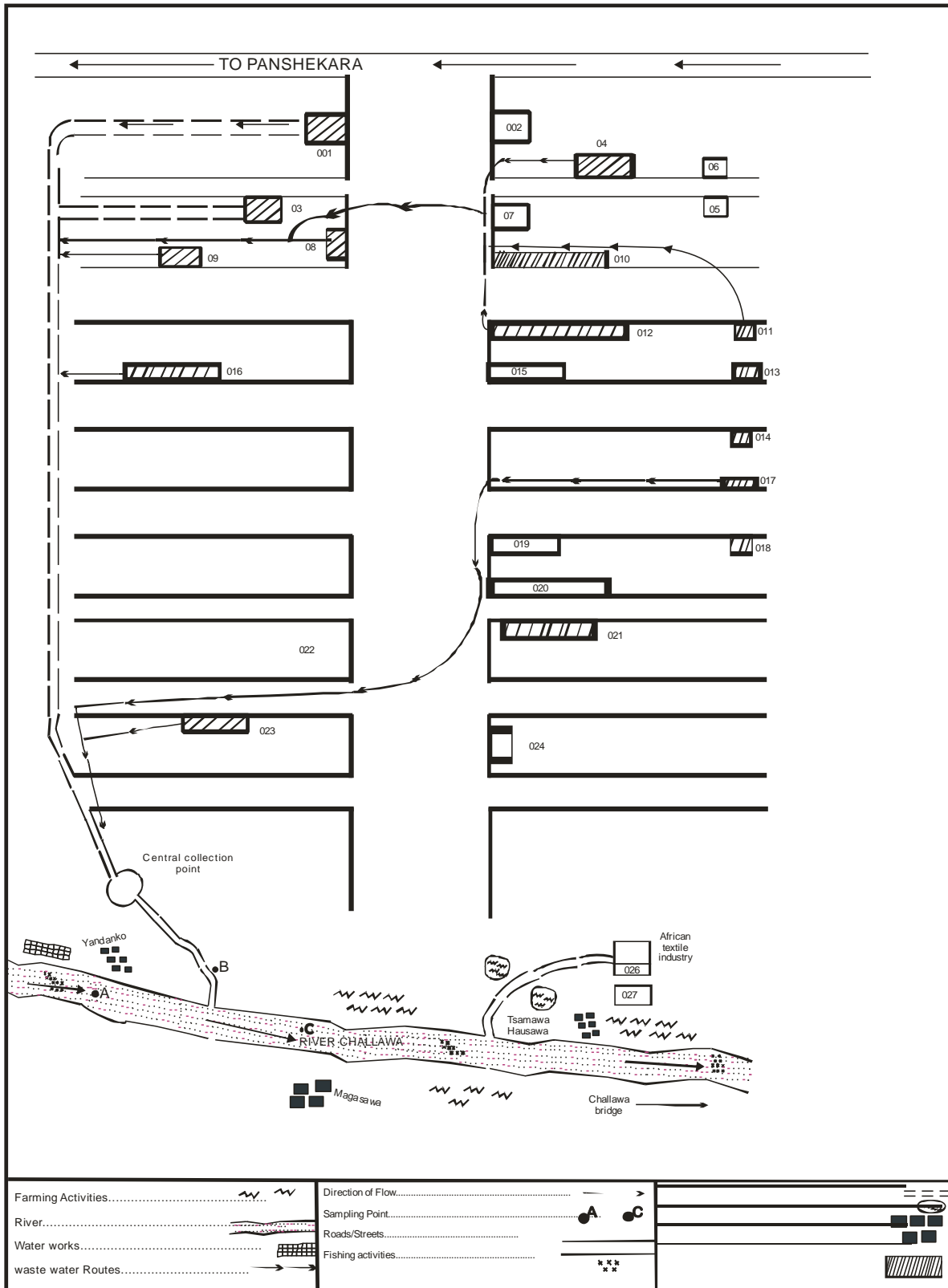


Fig.1.A sketch map showing the study area

3. Result and discussion

Four hundred inhabitants (400) such as labourer, sand miners, fishermen and local people were interviewed to know their level of awareness on the hazard caused by industrial effluents and environmental disaster in the community. The response of the citizen living close to the drain of the effluent emanating from tannery industries and textile before it enter into river Challawa as reflected in figure one above is represented in Tables 1,2 and 3.

Table 1: Respondents according to their age

AGE	FREQUENCY	%TOTAL	MEAN	SD
YOUNG (15-30)	120	30	38	9.53
YOUTH (31-50)	200	50		
OLD (> 50)	80	20		
TOTAL	400	100		

Table 2: Respondents according to their education level

EDUCATION LEVEL	FREQUENCY	%TOTAL	MEAN	SD
ILLITERATE	150	37.5	25	2.5
PRIMARY LEVEL	120	30		
SECONDARY LEVEL	115	28.75		
HIGHER LEVEL	15	3.75		
TOTAL	400	100		

Table 3: Respondents according to their occupation

OCCUPATION	FREQUENCY	%TOTAL	MEAN	SD
SAND MINERS	50	12.5	16.67	1.67
LABOURERS	100	25		
STUDENTS	50	12.5		
FISHERMEN	50	12.5		
FARMERS	100	25		
OTHERS	50	12.5		
TOTAL	400	100		

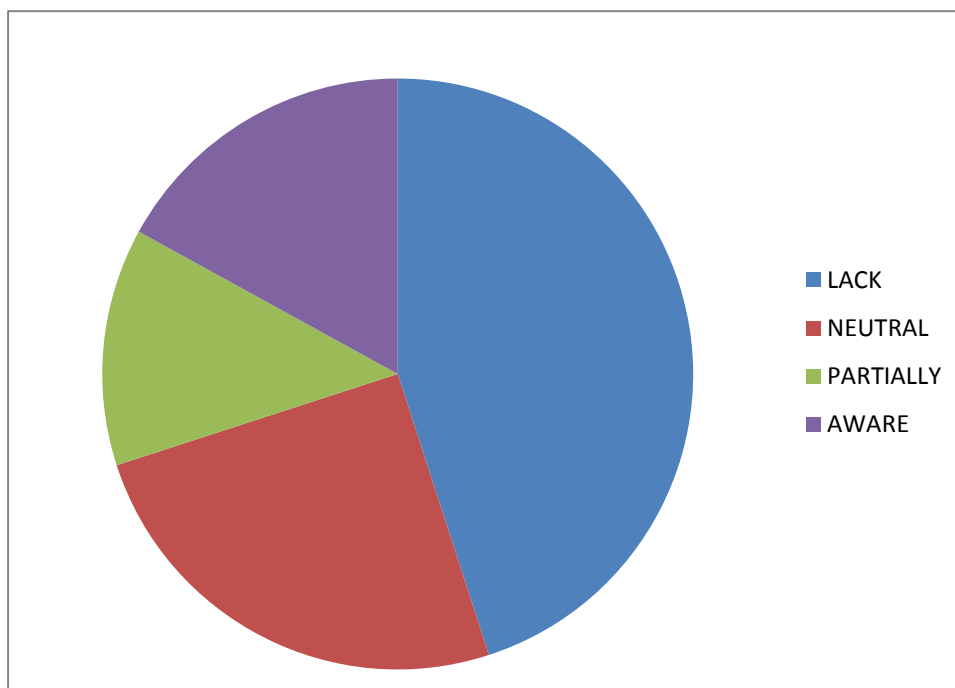


Fig.2: The Level of Awareness of Inhabitants

3.1 Environmental disaster by industrial effluent.

The field survey work that was conducted revealed that the common environmental challenge in the area was due to unpleasant odour of the industrial waste water proofed by 50% of the inhabitant. Acid and heavy metals concentrated reagents are applied in tanning and textile industries ^[11]. As a result of poor management of services, tanning and textile industries create environmental disaster periodically ^[1]. Environmental pollution is an ecological concern; almost 95% of industrial effluent affects the quality the environment because of presence of heavy metals which cause bad odour to the surroundings and health hazard.

3.2 Environmental pollution awareness.

The response of the people residing in the study area shows that (17%) had environmental pollution awareness, (45%) were not acquainted, (25%) medium class of awareness and (13%) had neutral awareness as shown in (fig.2). The highest proportions of the respondents were living closely to the bank of the drain of the effluent before it enters in to river Challawa and they inhale the bad odour.

4. Conclusion

Tanning industries and Textile pose a negative treat to the environment by polluting the soil, groundwater and surface water as a result of the chemicals been used in conversion of raw hides and skin into commercialized leather and cotton to garment ^[4]. These chemical when applied from beam house section to finishing part contains some physicochemical parameters and heavy metals which are not pleasant to human health and most of these tannery and textile treat their effluent partially before discharge to the environment where human being live and practise cultivation.

The health problem caused by occupational and environmental hazards as a result of less treatment of tannery effluent are particularly acute where well established methods of hazard control are partially likely to be applied because of limited awareness of the hazards, low political priority of health and environment matters, low resources or inadequate of

appropriate occupational and environmental health management systems. A major implementation to environmental and health hazard control in many parts of the world is the lack of people with appropriate training and awareness.

Recommendation

It is now well recognized that the scientific knowledge and training required in assessing and controlling environmental health hazards is essential. Toxicology, epidemiology, occupational hygiene, ergonomics and safety engineering are the basic tools of environmental science. The process of risk assessment and management is essential for identifying the hazards, categorize the risks assess the exposure and estimate risk. This is followed by evaluating control options, controlling the exposure, communicating the risk to the public and establishing an on-going exposure and risk monitoring programme. Thus, occupational and environmental health is strongly linked by common methodologies, particularly in health assessment and exposure control. Hence, further work is recommended to be carried out on the fauna and flora in the area.

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