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Evaluation of the Effectiveness and Efficiency of House To House Inspection Manual in the Control of Sanitation Related Diseases in Gombe Metropolis, Gombe State, Nigeria.

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Abstract:
Introduction: *House provides a physical framework in which human, social, economic and cultural resources are realized, enriched and integrated. In the traditional African setting, a house is one of the greatly cherished material properties. This is partly due to other vital cultural functions of houses which include protection of family cohesion and values, taking care of aged through extended family system, properties for inheritance and preservation of ancestral values among others. In developing countries such as Nigeria, the major factors that cause morbidity and mortality are traceable to factors arising from poor environmental sanitation. Poor housing sanitation, coupled with rapid increase in population in the urban and rural centers have encouraged the preponderance of various health hazards including overcrowding in living accommodation, inadequate water supply, poor solid waste management and indiscriminate disposal of faeces. In some instances, reared animals co-habit the already overcrowded living accommodations with humans, thus promoting the spread of zoonotic infectious diseases. Poor housing sanitary condition causes high incidence of diseases such as tuberculosis, pneumonia, asthma, influenza food and lead poisoning which are related to overcrowding, poor ventilation in houses and living accommodations. Statement of the Problems. One among the major key role of environmental health officer is house to house inspection, with aim purpose to detect and abate nuisances. The house to house inspection manual is a road map for effective and efficient house inspection, since the inception of such manual no any work done to evaluate its effectiveness and efficiency in the control of sanitation related diseases.*
Objectives of the Study*. Twelve objectives and twenty research question were formulated the review of the related literature include both primary and secondary sources,*
Research Methods*. The research design is descriptive, cross sectional and multistage, the study area is Gombe metropolis while the population of the study include all the house type A,B,C within Gombe metropolis. The simple random sampling was used to sample 2500 houses and the instrument for data collection includes questionnaire, checklist, interview, observation and experiment.*
Findings*. The finding shows that, the existing manual is inadequate for house to house inspection because it lack some areas such as indoor air pollutant, outdoor air pollutant, lead poisoning, health assessment, water quality analysis, pets and pets management, vectors and rodents control, housing population, smoke and carbon dioxide detectors, swimming pool, children play ground, escape doors, geographical information system (GIS) electrical and electronic appliances, heating, ventilation and air conditioning among others.* ***Recommendation.*** *Finally, the researcher recommends the adoption of newly design manual for effective and efficient house to house inspection to control sanitation related diseases.* ***Conclusion****. For environmental health officers to carry out effective and efficient premises inspection there is need for standard, up to date and functional soft and hardware Inspection Manual. But currently the available House to House inspection manual is short of these qualities. It lack a lot of variables particularly in the area Pet and pet management, recreational facilities, indoor air pollutant, outdoor air pollutant, electrical supply and appliances, smoke and CO_2 detectors. As it is, the existing House to House Inspection Manual is inadequate to provide the detailed result of Housing premises inspection report to be used for improving the standard condition of our environment by making it free from pollution, nuisance, other hazardous substance and make it more ecofriendly.*

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I. Introduction

House provides a physical framework in which human, social, economic and cultural resources are realized, enriched and integrated (Andrzenjewski, 2005). In the traditional African setting, a house is one of the greatly cherished material properties. This is partly due to other vital cultural functions of houses which include protection of family cohesion and values, taking care of aged through extended family system, properties for inheritance and preservation of ancestral values among others (Marshy, 2004)

House is considered as one among the major environmental factors whitch play a major role in the health and wellbeing of the individual. In developing countries such as Nigeria, the major factors that cause morbidity and mortality are traceable to factors arising from poor environmental sanitation (Adedeji, 2004). Poor housing sanitation, coupled with rapid increase in population in the urban and rural centers have encouraged the preponderance of various health hazards including overcrowding in living accommodation, inadequate water supply, poor solid waste management and indiscriminate disposal of faeces (Onibokun, 1985). In some instances, reared animals co-habit the already overcrowded living accommodations with humans, thus promoting the spread of zoonotic infectious diseases.

Poor housing sanitary condition, causes high incidence of diseases such as tuberculosis, pneumonia, asthma, influenza is related to overcrowding, poor ventilation in houses and living accommodations, prevalent in slums and environmental condition in slums and shanties found in pre-urban centers. The poor housing situation and other environmental conditions in the slum also encourage crime, juvenile delinquency, fire accidents as well as other injuries and death (Adedeji, 2004).

Domestic waste has also increased tremendously as a result of increase in population and changing lifestyle, improper disposal of domestic waste encourages the breeding and habitation of insects and rodents which are agents of various communicable diseases in living accommodations (Onibokun, 1985). Very often, hospital, clinics and industries are located within residential areas of towns and villages. The medical facilities generate medical waste that contain infectious materials including used needles, plastic syringes, soiled dressings, human tissues, etc. the industries generate various types of chemical waste, which are toxic and not readily degradable and these are indiscriminately disposed alongside domestic waste within residential areas. These wastes pose substantial hazard to the environment and public health (Adedeji, 2004).

The issue of poor sanitation particularly when it comes to housing premises has received the attention of the Federal Government through the various Agencies over the years. Prior to the establishment of the federal Ministry of Environment, the National Council on Health during its meeting in Jos in 1991 recommended that all States in the Federation should reintroduce House to House Inspection (Sanitary Inspection of Premises), sanitary inspection of houses in all LGAs as a means of raising the level of Environmental Sanitation throughout the country. This was based on recognition of the vital roles played by sanitary inspection in ensuring general cleanliness in homes and communities during the colonial and immediate post-independence era. The call by the National Council on Health was further reinforced by the National Council on Environment, which also recommended during its meeting in Kano and Ilorin in September 2000 and December, 2003 respectively that there is need for the reintroduction of house to house sanitary inspection in all the Federal, State, and Local Government in the entire federation.

In 1975, a small group of concerned house to house inspection officers formed a study group to trouble shoot inspection techniques and enhance their knowledge and professionalism.Today, houses premises inspection has been performed on a very casual basis by very limited numbers of individuals. This group later turned into the California Real Estate Inspection Association (CREIA). In 1977, the American society of house inspectors (ASHI) was formed. In cooperation with CREIA, the first code of Ethics and standards of practice for house inspectors was developed. In 1985 the state of Texas enacted the first professional practice Act.

The Healthy Housing Inspection Manual is a model reference tool that local jurisdictions or others may use as it is or modified based on local needs. Use of the manual is expected to improve the effectiveness and efficiency of the house to house inspection, public health, housing management, and workforces that identify, prevent, and control health problems associated with housing.

The Healthy Housing Inspection Manual takes environmental health professionals and housing managers, specialists, and inspectors through the elements of a holistic home inspection. It is also a useful reference tool for nurses, outreach workers, and others who are interested in preventing illness and injury due to residential health and safety hazards. The Healthy Housing Inspection Manual addresses the broad range of housing deficiencies and hazards that can affect residents' health and safety. The purpose of the manual is to improve communication and collaboration among environmental and public health professionals, housing professionals, property owners and property managers. It can also increase the understanding of the relations among exposure to hazardous agents, conditions in the home, adverse health outcomes, and improve the ability of programs to address an array of housing deficiencies in an efficient, effective, and timely manner.

A house to house inspection manual for use in the course of sanitary inspection of premises (house to house inspection has been developed by the Federal Ministry of Environment. It is referred to as Form ES 1,

which is approved as a tool that can be used by sanitary workers while conducting inspection of living premises. The form is to be duly completed, coded appropriately and signed accordingly. Such forms are to be analyzed weekly or monthly as the case may be to collect data that can later be used to generate tables, frequencies, bar charts, etc. that would depict status or trends in sanitary conditions of premises in a particular area or community.

Although a checklist manual for use in the course of sanitary inspection of premises (house to house inspection) has been developed by the federal ministry of environment, much remain to be done to ascertain as well as to find out its effectiveness, efficiency and area covered to ensure effective sanitary condition and healthy living of Nigerian houses which give birth to this research work.

II. Objectives of the Study

1. Determine how effectively the house inspection manual addresses physical, biological and social aspects of house inspection.
2. Find out if the house to house inspection manual covers the area of Air quality, indoor and outdoor air pollutant.
3. Find out if the existing house to house inspection manual covers the area of water quality analysis.
4. Find out if the existing house to house inspection manual covers the area of Geographical Information System (GIS).

III. Material and method

The research design for the purpose of this research work is descriptive. The study would be descriptive cross sectional survey.A total of 1570 houses will be sampled for the study.Multistage sampling technique will be used for the selection of the Houses in Gombe metropolis. Include, existing checklist manual, observation, oral interview and newly well design checklist manual.

Findings

Assessment of physical, Biological and Social content of the existing house to house inspection Manual

Table 1: Social content of the existing house to house inspection manual

	Trade	Trade permission	Children play ground	Swimming pool	Smoking area
Chi-Square	.771[a]	1.152[a]	62.400[b]	48.514[b]	56.457[b]
Df	1	1	2	2	2
Sig.	.380	.283	.000	.000	.000

a = 0.0001 b = 0.005 c = 0.05

The result in table 1 shows that there was no significant association between observed and expected trade and trade permission but there was highly significance association between children play ground, swimming pool and smoking area ($p<0.0001$). This shows that the existing inspection manual cover the area of trade carryout and trade permission. But it does not cover the area of children play ground, swimming pool and smoking area.

Assessment of the content of house to house inspection manual (Biological content)

Table 2: Biological content of the existing house to house inspection manual

	pets and pets management	vectors and vector control	Rodent and rodent control	rearing of Animals	Health Assessment of family members	population and age of housing members	general surrounding overgrown weeds	evidence of pest infestation in the surrounding area
Chi-Square	14.200[a]	25.905[b]	12.571[b]	30.095[b]	26.381[b]	29.800[c]	.771[d]	.467[d]
Df	3	4	4	4	4	5	1	1
Asymp. Sig.	.003	.000	.014	.000	.000	.000	.380	.495

The result in table 2 shows that there is highly significant association between observed and expected in pets and pets management, vectors and vector control, Rodent and rodent control, rearing of Animals, Health Assessment of family members, and population and age of housing members. But there was no significance association between general surrounding overgrown weeds, and evidence of pest infestation in the surrounding area at ($P < 0.001$). This shows that the existing inspection manual does not cover the area of pets and pets management, vectors and vector control, Rodent and rodent control, rearing of Animals, Health Assessment of

family members, population and age of housing members. But it cover the area of general surrounding overgrown weeds and evidence of pest infestation in the surrounding area.

Assessment of the content of house to house inspection manual (Physical content)

Table 3: Physical content of the existing house to house inspection manual

	Building exterior items	Fire escape doors	lightening and electrical fittings	housing roofing	Electrical system	Fire protection	Heating ventilation and air conditioning	Elevators	Lead Poisoning	Smoking area
X^2	18.848[a]	5.543[b]	6.171[b]	36.143[a]	32.562[a]	7.086[b]	21.657[b]	19.943[b]	52.676[a]	71.619[c]
Df	3	2	2	3	3	2	2	2	3	4
Sig.	.000	.063	.046	.000	.029	.000	.000	.000	.000	.000

Table 4: Physical content of the existing house to house inspection manual (Cont.)

	Smoke and CO2 detector	Walk ways/ steps	Floors, wall, and ceiling	Doors and Windows	Air purifier, humidifier/dehumidifier	Water heater and house Plumbing	Store
X^2	42.476[c]	13.590[a]	21.210[a]	51.600[b]	28.676[a]	19.533[a]	1.095[a]
Df	4	3	3	3	3	3	3
Sig.	.000	.004	.000	.000	.000	.000	.778

Table 5: Physical content of the existing house to house inspection manual

tchen	aundry and eographical formation ystem	atio/Porch/Deck d Balcony	airs	ousing fence	scape door
.048[c]	.333[c]	..886[b]	.238[c]	.429[c]	.895[a]
00	00	03	00	00	00

The table 3 above identified that there was highly significant association between observed and expected Building exterior items, Fire escape doors, lightening and electrical fittings , housing roofing, Electrical system, Fire protection, Heating ventilation and air conditioning, Elevators, Lead Poisoning, Smoking area, Smoke and CO2 detector, Walkways/steps, Floors, wall, and ceiling, Doors and Windows, Air purifier, humidifier/dehumidifier, Water heater and house Plumbing, Store, kitchen, Laundry and Geographical Information System, Patio/Porch/Deck and Balcony, Stairs, housing fence, and distance between source of water and sanitary conveniences. But there was no significance association between at ($P < 0.001$). This shows that the existing Inspection manual does not cover the physical area of Building outdoor and indoor air pollutants, Building exterior items, Fire escape doors, and safe place to meet outside in case of fire, lightening and electrical fitting, housing roofing, Building system, Electrical system, Fire protection, Heating ventilation and air conditioning, Elevators, Lead Poisoning, poison control and other emergency number, Smoking area, Smoke and carbon dioxide detector and tested smoke alarms, Walkways/steps, Floors, wall, and ceiling, Doors and Windows, Air purifier, humidifier/dehumidifier, Water heater and house Plumbing, Store and kitchen facilities, Laundry and Geographical Information System, Patio/Porch/Deck and Balcony, Stairs and housing fence. But it covers the area of kitchen

IV. Conclusion

For environmental health officers to carry out effective and efficient premises inspection there is need for standard, up to date and functional soft and hardware Inspection Manual. But currently the available House to House inspection manual is short of these qualities. It lack a lot of variables particularly in the area Pet and pet management, recreational facilities, indoor air pollutant, outdoor air pollutant, electrical supply and appliances, smoke and CO_2 detectors. As it is, the existing House to House Inspection Manual is inadequate to provide the detailed result of Housing premises inspection report to be used for improving the standard condition of our environment by making it free from pollution, nuisance, other hazardous substance and make it more ecofriendly.Brcause there is no significance difference between the existing house to house inspection manual interms of physical, Biological and Social Content of the environment.

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