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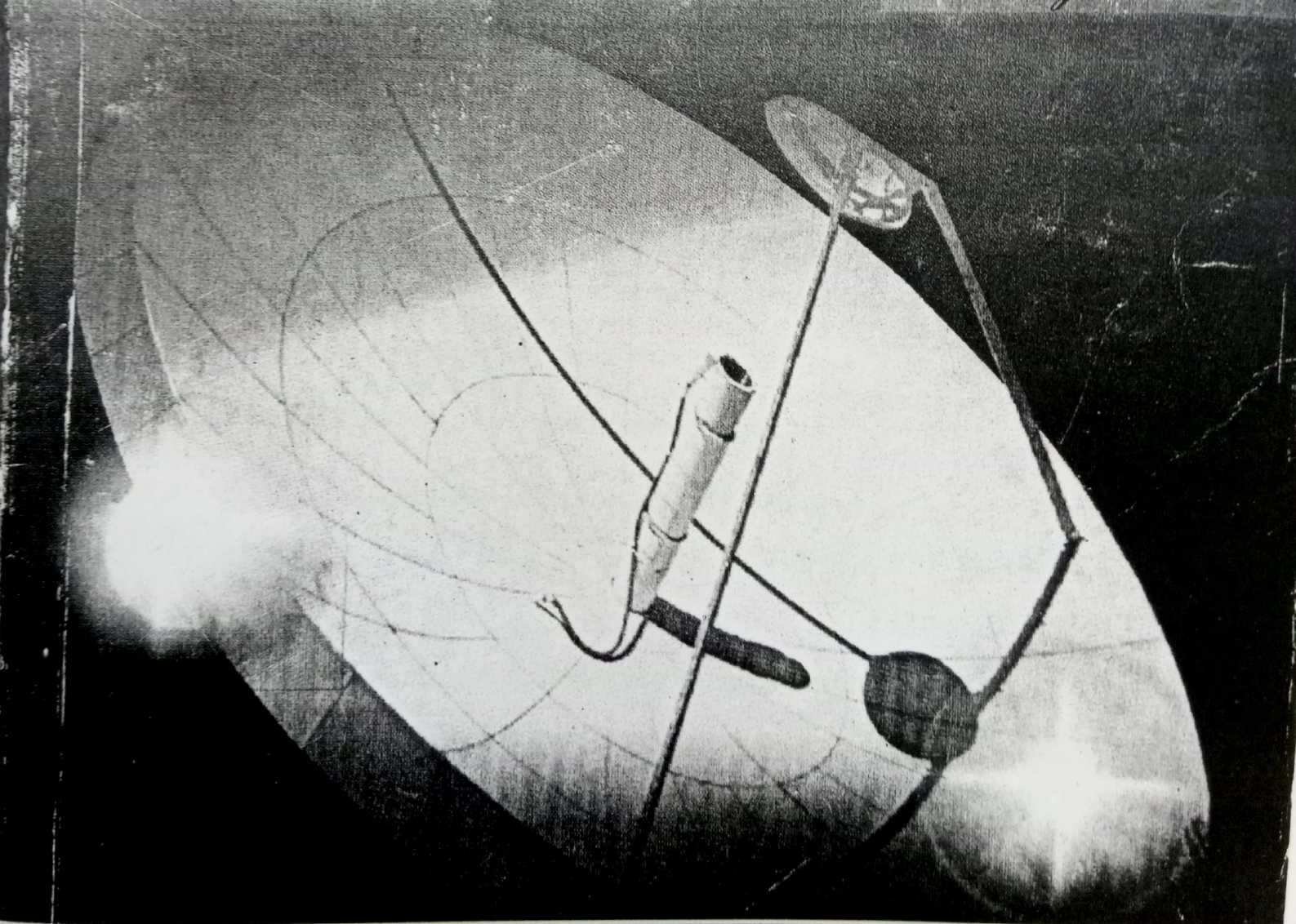

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RESPONSIBLE ENVIRONMENTAL BEHAVIOUR: THE ROLE OF COMMUNICATION

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ABSTRACT

Environmentalists and policy-makers in Nigeria are becoming increasingly interested in the means and ways by which individuals can be encouraged to engage in environmental options that will promote environmental sanitation. This paper used information elicited from respondents using a large questionnaire survey focusing on the communicational understanding of the concept environmental behavioural change. In our research, responsible environmental behaviour (REB) was studied from the communication perspective in order to understand the individual and the social factors that lead to the adoption or rejection of the REB. We developed a communication model to explain how REB can be promoted amongst citizens.

Key words: Communication, Responsible Environmental Behaviour, Port Harcourt, Environmental Sanitation

1. INTRODUCTION

The most serious long-term threat facing the world today is the danger that human actions are producing irreversible harmful changes to the environmental conditions that support life on Earth. If this problem is not overcome, there may be no viable world for our descendents to inhabit. In order to curb the mountain of environmental problems, especially urban solid waste management that is currently threatening the quality of life in most developing countries, environmentalists through various conferences have advocated for a shift from technical and scientific solution to the modifications of human behavioural pattern towards

the environment (UNCHE, 1972, UNCED, 1992, DOE, 1994 and DEFRA, 2002).

Developing responsible environmental behaviour has become one of the tasks of environmentalists most especially environmental educators. Several approaches that can be employed to promote environmentally responsible behaviour have been advocated (Oskamp, 2002, Kurtycz, 2005 and Ayodele, 2005). In Nigeria, evidence abounds, where ordinary citizens have arbitrarily dumped their solid waste refuse into gutters or open drains (even when hoppers or waste bins are provided). For example, in a study carried out in Lagos in 2005 to assess the success of Lagos Environmental Sanitation Authority and Malaria Control Project in six communities of Surulere, Ajeromi and Mushin Local Government Areas, about 70 percent of the sampled 1403 respondents confirmed that they often dumped their refuse inside the gutters (CPH, 2005).

This paper proposes an approach that draws upon the relevance of communication in changing human behaviour and responses. Using what might broadly be termed a communication approach, a model was formulated that will help to promote responsible environmental behaviour. The remaining part of this paper focuses on demonstrating the range of factors influencing environmental behaviour.

2. DEFINING RESPONSIBLE ENVIRONMENTAL BEHAVIOUR (REB)

What then do we really mean when we talk about responsible environmental behaviour. Cottrell and Graefe (1997) defined responsible environmental behaviour (REB) as actions taken by individuals or a group of individuals to do what is right to protect the environment. Kurtycz (2005) gave a practical definition of REB as the whole of actions of an individual within the society, that take into account, in a conscious way, the perennial and harmonious relationship between these actions and the environment. According to Emmons (1997), REB is a self-determined behaviour aimed at consciously influencing the environment positively.

From these definitions REB is targeted at the whole of actions taken as distinct from positive environmental actions that are aimed at isolated actions. Responsible environmental behaviour is concerned with doing what is right. But to do what is right is not easy if one does not know the value scale of what is right and what is wrong.

2.1 The Role of Communication in Promoting Responsible Environmental Behaviour

The study of the role of communication in influencing the

adoption of responsible environmental behaviour dates back to early 1990s, when in Mexico, the need to manage the problem of water shortage arose (Kurtycz, 2005). It was clear then, that in order to develop methodologies to deal with water environmental problems, it was necessary to carry along the populace using the communication perspective. Communication can help individuals to understand the interaction between resources (natural) and the environment.

Communication from the perspective of this paper goes beyond the mere provision of information by technical means (telephone, print and electronic media). Communication as used in this paper is a way of approaching and explaining processes in society. Like mathematics or economics it fosters a particular way of describing the world. It is another hole in the box through which we can look at reality. The definition of communication of Lacroix and Tremblay, (1997) as the exchange process among the individual and group members of a given society using codes, rules, and techniques represent the view of this paper. REB can be translated using terms of codes, rules and techniques such that it's dynamics can be understood from a communication perspective.

Communication approach allows us to see environmental practices in the context of a system that goes from the definition of the REB to its translation and implementation. REB can be communicated using codes, rules and techniques.

2.2 Factors that Influences Responsible Environmental Behaviour

There is a wealth of evidences to suggest that three categories of factors contribute to REB (Hungerford and Volk, 1990; Hines, et al, 1987 and Kurtycz, 2005). These are; (i) cognitive factors which include the levels of understanding of environmental issues and how to take action (ii) psycho-social factors that include attitude towards environmental issues, and sense of responsibility to do something to reduce environmental degradation and (iii) demographic factors such as gender and the level of educational attainment. Hines et al (1987) conceptualized the relationship between the factors (see Fig. 1).

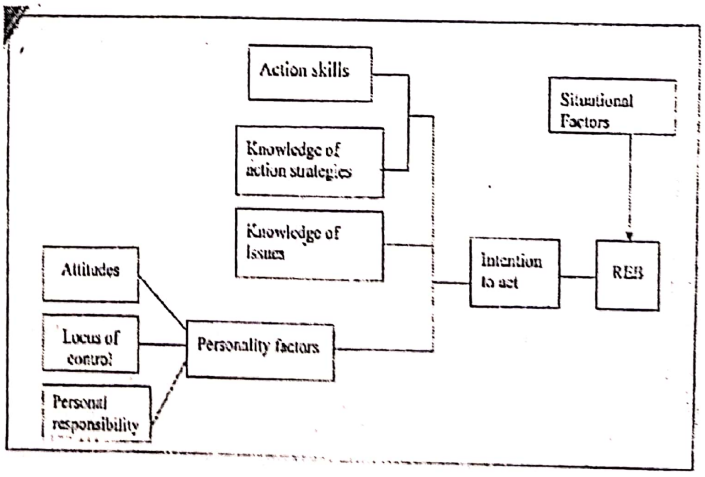

Fig 1: Model of Responsible Environmental Behaviour (Source: Hines *et al*, 1987)

3. METHODOLOGY

3.1 Study Area

Port Harcourt, the study area is the capital of Rivers State with area coverage of about 12,000Ha (NDDC, 2003). The population of the area is estimated at 1,200,000 million using a projection of 2.8 percent growth rate of the 1991 population figure (NPC, 1991).

The area is an important industrial and commercial center with a number of flourishing industries such as National Fertilizer Company of Nigeria (NAFCON), Eleme Petrochemicals Company Limited, Port Harcourt Refining Company Limited etc. The presence of potential energy from oil and natural gas has made Port Harcourt to become one of Nigeria's most important industrial cities.

Previous study of the meteorology of the area (Gobo, 1998) reveals the average atmospheric temperature to be 25.50 °C in the rainy season and 30.0 °C in the dry season. The daily relative humidity values range from 55.50 percent in dry season to 96.00 percent in rainy season. Rainfall in the area averages 2500mm annually. The rainfall pattern shows two identifiable seasons; the rainy season (April to October) and the relatively short dry season (November to March).

Average daily waste (refuse) generated in Port Harcourt ranged between 900 to 1350 metric tons (RSESA, 2005). The agency charged with the responsibility of solid waste management in Port Harcourt is Rivers State Environmental Sanitation Authority (RSESA). The agency created refuse collection centers / points within the metropolis and evacuate it to designated government approved dumpsites. Composition of waste generated include; Garbage (41%), paper and plastics (35%), scrap metal and glass (15%), construction waste (4%), sludge (3%) and expired chemical wastes and drugs (2%) (RSESA, 2005).

3.2 Study Population

The study compromised of 450 randomly selected participants that are strategically resident close to refuse collection points or centers. The choice of this category of participants is based on the assumption that they have better perception of environmental problems (Chokor, 1988).

3.3 Study Instrument

The research instrument used in this study is the questionnaire. The contact and collect method was used to administer and retrieve the questionnaires. The study was conducted from September to December 2007.

The questionnaire began with requests for demographic data of the participants and six (6) issues / or questions to which respondents were expected to respond. The questions or statements focused on situational factors, behavioural

intention, psychological variables regarding solid waste (refuse) management [see Figure 2].

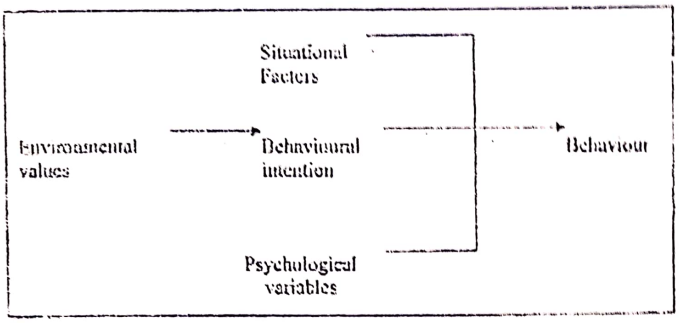

Fig. 2: Conceptual framework for developing the questionnaire

The specific questions and /or statement were worded as follows:

(i) Do you use your own bag / basket when going for shopping / market or you use the one provided by the shop?

(ii) How often do you dispose your refuse in designated collection points / centers?

(iii) Do you accept cellophane bag to carry small size products purchased at a store?

(iv) Willingness to make financial sacrifices for environmental protection.

(v) Awareness of the effects of poor environmental sanitation.

(vi) Identification of major environmental problems.

For questions / or statement (i iii), respondents were expected to respond in a likert-scale format, with response categories as follows: 1-always; 2-almost always; 3-frequently; 4-occasionally; 5-rarely and 6-never. For question (iv), respondents were expected to respond in a likert scale format with response categories as follows; 1-strongly agree; 2-agree; 3-slightly agree; 4-slightly disagree; 5-disagree and 6-strongly disagree. For question (v), respondents were expected to respond in a positive or negative e.g aware or unaware. For question (vi), respondents were asked specifically to indicate three most serious environmental problems in the list presented to them.

4. RESULTS AND DISCUSSION

Demographics

The response rate was 87.11 percent with 392 responses received. Respondents provided answers to all questions or issued raised and no data was treated as missing values. Data from the demographic section yielded information about respondent's demographic characteristics (Table 1). Table 1: Demographic characteristics of Respondents

Characteristics	No.	(%)
Gender		
- Male	149	38.01
- Female	243	61.99
Marital Status		
- Single	269	68.62
- Married	123	31.38
Age		
- 10-20	173	44.13
- 21-30	198	50.50
- 31-40	21	5.37
- 41-50	-	-

Majority of the respondents were females (61.99%) while others (38.01%) were males. This implies that

a reasonable number of waste managers at the household levels are females. It has been hypothesized that women demonstrate greater enthusiasm in environmental issues than men (Gifford *et al*, 1982 and Hampel, *et al*, 1996). Majority of the respondents were in the age group of 10 and 30. Most of the respondents were single (68.62%) while (31.39%) were married.

4.1 Attitude / Behaviour Change

In regards to psychological factors, attitudes towards reducing the amount of waste generated was tested when respondents were asked on the issue; whether they used their own bag / basket or buy a new one when shopping / market. The outcome of the analysis is presented in Table 2.

Table 2: Use my own bag when going shopping

Response category	No.	Percent
Always	0	0.00
Almost always	2	0.51
Frequently	27	6.89
Occasionally	134	34.18
Rarely	216	55.10
Always	13	3.32
Total	**392**	**100.00**

Taking situational factors into consideration the variable of waste / refuse disposal pattern was analyzed, using responses obtained from question (ii). The outcome of the analysis is presented in Table 3.

Table 3: How often do you dispose your refuse in designated collection points / centers.

Response category	No.	%
Always	12	3.10
Almost always	-	-
Frequently	37	9.40
Occasionally	103	26.28
Rarely	240	61.22
Never	-	-
Total	392	100.00

Behavioural intention of respondents in relation to whether or not they accept cellophane bag to carry small size products purchased at a store is presented in Table 4.

Table 4: How often do you accept cellophane bag to carry small size products purchased at a store.

Response Category	No.	%
Always	163	41.58
Almost always	28	7.14
Frequently	122	31.12
Occasionally	37	9.44
Rarely	31	7.91
Never	11	7.91
Total	**392**	**100.00**

Behavioural intention in this study is described as the willingness to act. The responses of respondents to question or statement no. iv is presented in Table 5.

Table 5: Willingness to make financial sacrifices for environmental protection

Response Category	No.	%
Strongly agree	-	-
Agree	21	5.36
Slightly agree	-	-
Slightly disagree	-	-
Disagree	74	18.88
Strongly disagree	297	75.76
Total	392	100.00

Respondents were presented with a list of the most likely effects of poor environmental sanitation and they were requested to indicate whether they are aware or not. Table 6 gives the most likely effects of poor

environmental sanitation and the responses of the participants. On how serious these effects can be, respondents were asked to rate each using a three-point scale corresponding to very serious, serious and slightly serious. The outcomes of the respondents are presented in Table 7.

Table 6: Respondents' perception of the effects of poor environmental sanitation.

Effects of Poor Environmental Sanitation	No. of Respondents			
	Aware	%	Unaware	%
Odour	357	91.07	35	8.93
Aesthetic Nuisance (Unslightly)	281	71.68	111	28.32
Breeding Of Disease Vectors	194	49.49	198	50.51
Flood	182	46.43	210	53.57

Table 7 : Respondents perception on the seriousness of the effects of poor environmental sanitation

Effects of poor Environmental Sanitation	No. of Respondents		
	Very serious	Serious	Slightly serious
Odour	217	93	82
Aesthetic Nuisance (Unsightly)	204	113	75
Breeding of Disease Vectors	38	216	138
Flood	80	193	119

When respondents were asked specifically to indicate three most serious types of environment problems in the list presented, their responses is as presented in Table 8.

Table 8: Environmental problems as perceived by respondents.

Environmental problems	%	Rank
Poor refuse disposal	81.12	1
Poor sewage disposal	40.05	7
Bad roads	76.02	2
Noise Pollution	51.79	5
Poor electricity supply	63.01	4
Air pollution	32.40	8
Water pollution	29.34	9
Deforestation	18.88	11
Poor Drinking Water	45.15	6
Erosion	19.36	10
Flooding	63.52	3

The focus of this paper is on promoting effective environmental sanitation through communicating responsible environmental behaviour and hence behavioural element of the questionnaire was comprehensive (questions i-iv). From Table 2, it could be seen that most individuals 'rarely' use their own bags when going for shopping; rather they depend on the ones provided by the seller. This implies that more refuse will be generated after every visit to shops / markets. From this, one can infer that the extent to which individuals were aware of waste reduction through the principle of reuse is shallow. Barr (2003) observed that greater knowledge of environmental principles and theories of waste reduction through communication enhances individual's ability to participate.From Table 3, it is evident that most individuals 'occasionally' or rarely dispose their refuse in designated collection points / centers. Such a finding does imply that acceptance of the norm or behaviour of individuals to always dispose their refuse in designated collection points / centers are low. From Table 4, most individuals do accept cellophane bag at a shore, no matter the size of the product they have purchased. The culture of waste minimization is lacking amongst the respondents.

In regard to attitudes towards protecting the environment through the willingness to make financial sacrifices, most individuals were

strongly opposed to it (Table 5). Their perception was that waste or refuse was not a threat to their personal welfare. However, few individuals (5.36%) who appreciated the waste problem as a serous threat to human existence evidently saw the need to commit finances towards solving the waste problem.

Table 6 gives the likely effects of poor environmental sanitation. The most widely recognized effect is odour (91.07%) followed by aesthetic nuisance (71.68%). The number of respondents indicating that they are aware of the effects of poor environmental sanitation is a clear indication of the existence of such problems. On how serious these effects can be, respondents were asked to rate each using a three serious and slightly serious (Table 7). Odour was perceived by respondents to be very serious, followed by aesthetic nuisance. This finding is consistent with the work of Ozo (1988).

When respondents were asked specifically to indicate three most serious types of environmental problems in the list presented to them, their responses are as presented in Table 8. Interestingly, poor refuse disposal ranked first while bad roads and poor supply of electricity ranked second and third respectively. This finding is consistent with the work of Rim-Rukeh and Ogbemi, (2006).

5. THE COMMUNICATION MODEL

The central assumption in this study is the need to understand the way people think before we can effectively communicate information for responsible environmental behaviour. From the study, it is evident that awareness, the capacity to act and acceptance of the norm of sound environmental practices are responsible for the responses. This paper therefore developed a communication model from the standpoint of this study.

The model is therefore based on the following principles:

(i) Definition of the problem and the need to solve the problem.
(ii) Definition of responsible environmental behaviour.
(iii) Translate REB to the interests and perception of the individual.
(iv) Kind of communication useful to creating the necessary awareness.

Our communication model is illustrated in Figure 3.

Fig. 3: Communication model and the responsible environmental

Behaviour. 13

The communication model allows us to understand the complex framework in which environmental awareness practices take place.

6. CONCLUSION

The results of the study indicates that environmental behaviour has a plethora of determinants that can be changed or influenced by adequate communication. Communication is therefore very important in influencing altitudinal change in the area of responsible environmental behaviour. The communication model proposed in Fig. 3 of well applied will go a long way in promoting responsible environmental behaviour.

7. RECOMMENDATIONS

Government and all change agents should continuously educate the people to adopt responsible environmental behaviour through well planned and executed communication campaigns. More studies should also be carried out in the important areas of communication and responsible environmental behaviour.

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