



Environmental communication strategies of the Rivers State Waste Management Agency (RIWAMA): Implications for sustainable waste management in Nigeria

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Abstract

Since the Rivers State Waste management Agency (RIWAMA) was set up to initiate and implement policies geared towards ensuring effective/efficient waste management in Rivers State, this study sought to appraise its communication strategies with a view to ascertaining their effectiveness in the light of compliance by residents. The objectives among others were to find out if issues of message clarity, communication channels and audience profile are well articulated in the communication strategy of RIWAMA vis a viz the awareness and knowledge of residents with respect to statutory waste disposal procedures. The peculiarities of the study necessitated survey with the multi-stage cluster sampling as the technique. Sample size for the two strands of population using sample size calculator stood at 181 for staff of RIWAMA and 385 for residents of Port Harcourt at 5% margin of error and 95% confidence level. Two sets of questionnaires were drawn to elicit responses from cognate staff of the agency and residents of Port Harcourt metropolis. With a correlation co-efficient of $r = 0.78$, reliability for the questionnaires which comprised both closed-ended and open-ended items was done using Pearson's Product Moment Correlation. Data analysis employed descriptive statistics. Findings revealed a commendably high awareness of RIWAMA campaigns by residents. Unfortunately, this awareness was not matched by a corresponding compliance to waste disposal procedures.

Keywords: Communication Strategies; Compliance; Environment; Waste Management

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1. Background

Communication is a fact of life. Communication indeed is an indispensable factor in every sphere of human endeavour. An age long aphorism – man cannot not communicate – seems to lend corroboration to this assertion. Buttressing the point further is the notion that every living thing finds expression through communication. Since humanistic settings depend primarily on the dynamics of communication, it therefore becomes most pertinent to accord the subject matter more than just a shifting glance.

The nexus of man and his environment is embellished in the fulcrum of communication. This is so because communication builds its essence on peace, equilibrium and mutual understanding. The beauty of nature as anchored on radiance; aesthetics and decorum interestingly demonstrates the hallmark of communication. In the light of the foregoing context Angell (2007) notes that “our interactions with others occur during specific social situations, in different physical environments and for a variety of purposes” (p. 8).

No doubt, communication is complex because it contains so many variables. Among these variables are the many aspects of human personality that each person brings to the encounter, the diverse forms that messages can take, the various channels the message can use and the influence of the context and environment on communication. The permeating beauty of communication in organic settings is most appreciated in the way and manner, man uses communication to organize and structure his environment. Without communication, man’s environment will become a desolate mass. This is where the issue of waste management comes in.

Waste problem is as old as man. It is dynamic and has evolved overtime. Emeribe (2000) notes that: uncontrolled urbanization, population explosion and speedy industrialization have generated a very high rate of waste. Waste management in this regard becomes an issue of great concern. This is so because the disposal of solid waste on land without appropriate planning and management can pose numerous dangers to health and the generality of wellness that the environment generates.

In this context, Flor (2004), sees environmental communication as “the application of communication to environmental management and protection through principles, strategies and techniques” (p.4). The foundation of environmental communication according to Flor (2004) is predicated on the general systems theory as bedrock within the framework of ensuring that every living system engages in:

- i. The exchange of materials with its environment and with other living systems.
- ii. The exchange of energy with its environment and with other living systems.
- iii. The exchange of information with its environment and with other living systems.

These according to Flor (2004) are necessary for the survival of the living system. As inferred from the foregoing, man’s environment is best described as a living system and the only ingredient needed to sustain that system is communication.

Pillman (nd) espouses that environmental communication is usually connected with environmental education, public participation and environmental politics. By extrapolation, this translates into issues that border on environmentally relevant information flow which involves both communicators and audiences and is achieved through coding, effective message delivery and interactive listening.

Interestingly, Mohammad (2011) posits that environmental communication is “a tool for which environmental problems is solved in a scientific way by the scientists in the different fields of study”.

The imputation however is that the environment is at its best when communication is effective and efficient bearing in mind the fact that communication is a tool for achieving ecological harmony and equilibrium. The foregoing aptly describes the scenario in developing countries where the environment seems to be greatly endangered by persistently unsafe and harmful practices.

Environmentally harmful practices seem to be commonplace phenomena in Rivers State and by extension Nigeria. The UNEP report on Ogoniland lends credence to this assertion. What is however needed in this regard is environmental communication.

It has however been observed by Awosusi and Akindutire (2016) that the Nigerian populace, both in the urban and rural areas, irrespective of their socio-economic status need to be sensitized on effective solid waste management so as to have enhanced wellness and well being. This is so because without proper education, orientation and public awareness at all levels, solid waste management becomes a herculean task. In other words, sound environmental communication and education are preconditions for proper waste management.

Perhaps it was in recognition of the foregoing that the Rivers State government, in its wisdom, set up the Rivers State Waste Management Agency (RIWAMA). The Agency is saddled with the responsibility of conceptualizing policies and practices that will engender cleaner and safer environments in Rivers State.

It is however expected that thoroughly articulated communication strategies, efficiently conveyed to the public with proper monitoring and adherence to statutes will bring about beauty and propriety in the environment. In this regard, communication as garnished in proactive strategies becomes the conveyor belt for greater ecological harmony and increased sense of wellness among the citizenry.

Since waste management is much more than the control of dirty nuisance, it becomes pertinent to focus on communication strategies which involve the concept of incorporating campaigns on the danger of improper waste disposal and practices needed to ensure a conducive environment. This brings to fore the need to examine the communication strategies of RIWAMA with a view to ascertaining their potency in ensuring proper waste disposal habits by the generality of the citizenry. The concern of this study is therefore preconceived in the foregoing.

1.1. About the Rivers State Waste Management Agency (RIWAMA)

The Rivers State Waste Management Agency (RIWAMA) is an agency of the Rivers State Government of Nigeria concerned with the responsibility of ensuring a clean and healthy environment. It was brought into existence in 2013 through an Act of Parliament.

As part of its statutory responsibility of maintaining a clean environment, the agency organizes a monthly sanitation exercise which has not only instilled but also tries to sustain the consciousness of cleanliness among the residents of Rivers State.

In terms of structure, the agency runs a highly centralized structure with a Sole Administrator at the helm of affairs. The operations of the agency are coordinated through a task force system. In other words, there is a task force (team) strategically set up to address any pertinent aspect of the operations of the agency.

Subliminally, the agency is expected to:

- i. Develop the most suitable and effective means of building understanding and garner support in keeping Rivers State clean.
- ii. Engage in environmental education and awareness among decision makers geared towards ensuring a better integration of environmental issues into development planning, budgeting and policy formulations.
- iii. Sensitize the citizenry and, by extension, residents on waste management policies, procedures and practices.
- iv. Ensure a mainstreaming of consciousness on best practices in terms of attitudinal conditioning and favourable dispositions.

1.2. Statement of the problem

Change does not happen in a vacuum. Positive change in every organic environment is usually brought about by interplay of factors that primarily border on behaviour change and attitudinal conditioning. Such factors often times are embellished in the fulcrum of communication as expressed through well articulated strategies. These intricacies when condensed become what in general terms is referred to as a communication strategy.

The communication strategy in this regard has been described by Angell (2007) as “a plan that guides the development of strategic messages” (p. 21). The plan she further notes must inform, build awareness, and influence the behaviour and beliefs of other people. A communication strategy also outlines the channels of information dissemination and the integration of these channels to achieve a common goal.

Porter (2015) notes that:

“A communication strategy isn't an end in itself. It needs to serve a business, campaign or organizational goal. Communication strategies may fall into two groups: campaign-focused, short to medium-term strategies and medium to long term organizational strategies (para. 3).”

The imputation however is that communication strategy must be goal oriented. Such goal orientations must streamline the problem as well as the solution. In the dimension of illumination, Porter (2015) further espouses that in designing a communication strategy, it is important to understand the audience. According to him, answers to the following questions may suffice: Is our audience local, regional, national or global? What media do they consume? How do they vote? Education? Age? Colour? What do they want to do? How can we help them? What stories do reporters want? What are their values?

The Rivers State Waste Management Agency (RIWAMA) as an interventionist organ of government is designed to ensure that the Rivers State environment is clean and safe. It has also been noted that effective

solid waste management can help conserve the planet and natural beauty. How this has played out in Rivers State and by extension Nigeria becomes a subject of great concern.

Unfortunately, Walls (2012) has hypothesized that:

“Diseases such as Dengue fever prevalent in developing nations are believed to be perpetuated by unsanitary waste disposal methods. Higher prevalence or reproductive disorders including low birth weight are common in areas located near existing and former landfills. Although studies have produced equivocal results, cancer clusters are said to also exist in areas within close proximity to landfills (para. 5).”

Improper waste management poses great challenges to the individual and society. It is in fact an index of wellness and wellbeing. An age long cliché “cleanliness is next to godliness” illuminates the notion of ecological balance. Since it is inevitable for human beings to generate waste, it becomes most pertinent to devise ways of effectively and efficiently managing the waste so generated by man. The way forward is for every individual to be responsible with what we throw away and how our waste is disposed (Walls, 2012).

Playing up Angell’s (2007) typology it becomes more than just cursory propulsion to examine how well the environmental communication strategy of RIWAMA serves to inform, build awareness and engender favourable attitudinal dispositions towards proper waste management. Since the ideals of proper waste management can never be overemphasized, the problem of this study therefore revolves around the need to ascertain if the environmental communication strategy of RIWAMA has been effective in ensuring proper waste disposal habits by residents of Port Harcourt metropolis bearing in mind the sensitization component of its environmental campaign as well as the streamlined channels of communication using varied demographics as a backdrop.

From the foregoing, it can be deduced that a common strand that runs through the literature on waste management is the issue of education as expressed through enlightenment and sensitization. Interestingly, education, enlightenment and sensitization are indisputable elements in every communication strategy.

1.3. Objectives of the study

The study sets to examine the environmental communication strategies of the Rivers State Waste Management Agency (RIWAMA) with a view to ascertaining effectiveness and efficiency in its waste management schemes. The objectives among others include the need to:

- i. Find out if issues of message clarity, communication channels and audience profile are well articulated in the communication strategy of RIWAMA.
- ii. Ascertain if residents of Port Harcourt metropolis are aware of the environmental campaign messages of RIWAMA.
- iii. Enquire if residents are aware of the waste disposal schemes of RIWAMA in terms of when, where and how to dispose of their solid waste.

1.4. Research questions

The following research questions have been drawn from the objectives of this study:

- i. To what extent are the issues of communication channels, message clarity, and audience profile, articulated in the environmental communication strategy of RIWAMA?
- ii. To what extent are residents of Port Harcourt metropolis aware of the environmental campaign messages of RIWAMA?
- iii. How well informed are the residents of Port Harcourt metropolis in terms of when, where and how to dispose their solid waste?

2. Literature review: The nexus of communication, behavior change and environmental sustainability

Communication is enigmatic and dynamic because its end product is meaning which comes as a result of interactions by interactants. It is a two-way process which dwells on dialogue and exchange rather than an exchange of inflammatory rhetoric. The functioning of organizations rests predominantly on the essence of communication.

Evans (1990) posits that “good communications are essential to the efficient operation of any organization and vital to the fulfillment of all those who commit their working lives to it” (p. 25). Miller (2006) espouses that innovation communication is most critical to the functioning of organizations. According to her, “it involves the interaction about new ideas in the organization, how the job can be done better, new products the organization could produce and different ways of structuring the organization”(p. 57). Baran (2013) sees communication as a “process embedded in our everyday lives that informs the way we perceive, understand, and construct our view of reality and the world” (p.7).

Ojobor (2016) in corroboration notes that:

“Communication is at the centre of every development effort. This role has continued to attract interests from development and communication scholars. It has also become an area of importance for all those who are involved one way or the other in the execution of development projects. The effort to keep Enugu metropolis in South-eastern Nigeria clean is one of such development efforts where the power of appropriate communication is needed to turn things around for good (p. 304).”

The foregoing however is embedded in the dynamics of communication strategy which when properly conceptualized and implemented engenders a communication necessitated behaviour change.

The notion of behaviour change is premised on the ideology of alternations in life styles. Morris (2006) notes that “the field of communication for change is dominated by two conceptual models – diffusion and participation. These models have distinct theoretical roots and differing emphasis in terms of programme designs and goals” (p. 8).

In the same vein, Narula (2006) opines that the last six decades of research has revealed that the role of communication in development is significant and that it changes with the change in development models (p. 126). This emerging approach has been described by Mefalopulos (2009) as dialogic and horizontal and has been condensed into the IECM (Information, Education, Communication and Mobilization) model. Inferentially, for behaviour change to be truly enduring, the communications media must create an environment that allows for integration and recognition of cultural values.

The imputation therefore is that communication is central to the notion of behaviour change. McCall and Groark (2013) citing Warner (1981) observe that:

“Communications campaigns that have a highly specific action goal, such as stop smoking, lose weight or conserve energy, have been shown by communications researchers to increase the likelihood that people receiving the message would indeed change their behaviours (p. 24).”

A great deal of importance is placed on communication (information) as a factor in the change process. Dovidio and Gaertner (2013) in their typology note that the first step in behaviour change cycle is to “increase the public’s awareness and understanding of issues of public concern which then helps to produce social change” (p. 98). Emphasis in this regards rests profoundly on information dissemination as a prerequisite to behaviour change. If communication leads to behaviour change, then expectedly, behaviour change in the area of improper waste disposal habits can indeed engender sustainability of environmental balance and ecological equilibrium.

Sutton (2004) defines environmental sustainability as “the ability to maintain the qualities that are valued in the physical environment” (para. 1). According to him, in order to prevent environmental problems from arising, environmental managers must work out ways of reducing the damage or wastage. For a programme to be typified as sustainable there must be an integration of actions to protect the environment from threats and damage. Sustainability in this regard revolves around:

- i. Ecosystem services
- ii. High quality urban environments
- iii. Areas of natural beauty
- iv. Other species and ecological communities
- v. The user value flowing from physical resources.

No doubt environmental sustainability is subsumed in the Millennium Development Goals (MDG7) and now Sustainable Development Goals (SDGs). In terms of performance assessment in Nigeria, Adeagbo (2013) observes that:

“The level of awareness of MDG7 is low among the local populace. The strength of the campaign for better environmental management practice cannot be compared with that of HIV/AIDS (under MDG 6) and children immunization (under MDG 4) thus downplaying the importance of

MDG 7. The low level of awareness has restricted the participation of all in the drive towards achieving the goals (54)."

In streamlining the structural causes of failure to attain environmental sustainability, Howes, Wortley, Potts, Dedekorkat – Howes, Serrao – Neumann, Davidson, Smith and Nunn (2017) espouse that communication failures and conflicting objectives are common.

The foregoing points to the importance of environmental campaign strategies. Inferentially, based on the foregoing analysis, the low level of awareness of environmental sustainability is attributed to ineffective and inefficient environmental communication strategies. Conversely, a more engaging communication strategy can at best engender environmental sustainability.

3. Methodology

The peculiarities of this study necessitated survey. This study design according to Wrench, Thomas Maddos, Richmond and McCrosKey (2008) is a “social scientific method for gathering quantifiable information about a specific group of people by asking the group members questions about their individual attitudes, values, beliefs, behaviours, knowledge and perceptions” (p. 214). The justification for this study design however lies on its ability to most likely produce results that are reliable and generalizable.

In view of the foregoing, the population of the study manifested two streams: staff of the Rivers State Waste Management Agency (RIWAMA) on the one hand and residents of Port Harcourt metropolis on the other hand. Justifiably, data on nature of the environmental communication strategies of RIWAMA were elicited from the cognate staff of the agency while data bordering on awareness and sensitization on the practices expected of the citizenry, in terms of waste disposal instructions, were elicited from the residents.

Descriptively, the staff strength of the agency according to personnel data stands at three hundred and forty one (341). On the other hand, figures from the 2006 census stand the population of Port Harcourt at 1,382,592. With a growth rate of 2.44% (www.indexmundi.com/nigeria/population_growth_rate.html), the projected population of Port Harcourt stands at 1,753,677.

Sample size for the two strands of population using sample size calculator stood at 181 for staff of RIWAMA and 385 for residents of Port Harcourt at 5% margin of error and 95% confidence level (www.raosfot.com/samplesize.html). The sampling technique adopted for the residents was the multi-stage cluster sampling. The technique actually necessitated the zoning of the metropolis along four groups: Zone A comprised town and old GRA while Zone B comprised Trans-Amadi, Woji and Elelenwo. Zone C comprised Old GRA, D/Line and Rumueme while Zone D comprised Ozuoba, Choba and Rumuosi. Respondents were finally selected using a table of random numbers as guided by the sample frame (names of streets and household numbers). On the other hand, the sampling technique for the staff of RIWAMA was systematic random sampling as guided by departments and units in the organization.

Data gathering instrument was the questionnaire. In other words, the questionnaire was used to elicit responses on issues of environmental communication strategies, messages and themes. In terms of structure, the questionnaire was divided into two sections – section A was for demographic details while section B was for psychographic details. Section B of the questionnaire comprised twelve (12) items out of which three(3) were open-ended and nine (9) were closed-ended with the predominant design dovetailing within the framework of the five (5) point Likert scale.

Face and content validity of the instrument was carried out on a pilot group with a view to ensuring completeness, coherence, comprehensibility and answerability. Reliability on the other hand was carried out using Pearson's Product Moment Correlation commonly symbolized as r.

$$r = \frac{N\Sigma XY - \Sigma X\Sigma Y}{\sqrt{N\Sigma X^2 - (EX)^2} \sqrt{N\Sigma Y^2 - (EY)^2}}$$

where x and y stand for the original score.

N = number of pair of scores

The computation showed r to stand at 0.78

Presentation of data was in tables while analysis was done using simple percentage and the weighted mean score (WMS) as shown in the formula below:

Strongly Agree (SA)	-	5 points
Agree (A)	-	4 points
Undecided (U)	-	3 points
Disagree (D)	-	2 points
Strongly disagree (SD)	-	1 point

The score of 3.00 was used as the criterion for decision on the responses to each item. Any mean response which is equal to or more than 3.00 is positive while any mean response less than 3.00 was treated as negative.

4. Data presentation and analysis

Data presentation and analysis followed a sectionalized pattern so as to allow for coherence. Section A focused on data elicited from the cognate staff of the Rivers State Waste Management Agency (RIWAMA) while section B dwelt on responses from residents.

4.1. Section A

Out of the one hundred and eighty one (181) copies of the questionnaire distributed, one hundred and fifty eight (158) were duly completed and returned thus showing an 87% return rate.

Table 1. Demographic composition of respondents (staff)

Sex	Frequency	Percentage
Male	90	57%
Female	68	43%
Education	Frequency	Percentage
University	59	37%
Post primary	80	51%
Primary	19	12%
Staff status	Frequency	Percentage
Management staff	16	10%
Senior staff	43	27%
Junior staff	99	63%

The demographics of the cognate staff of RIWAMA showed a preponderance of male as well as university graduates.

Table 2. Corporate Goal of RIWAMA

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 1: The focus of RIWAMA is to ensure a clean and safe environment in Rivers State	525	120	39	14	3	4.4	Affirm
Item 2: RIWAMA has put policies and programmes in place to accomplish these set goals	400	112	60	36	12	3.92	Affirm

The presentation above shows that the focus of RIWAMA is to ensure a clean and safe environment in Rivers State. Presentation further shows that the agency has a clear cut scheme on how to accomplish its set objectives.

Table 3. Cooperation of residents and sensitization

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 3: RIWAMA acknowledges that without the co-operation of residents, the agency may not accomplish much.	460	80	54	36	10	4.05	Affirm
Item 4: The agency has a clearly mapped out plan on how to inform residents on waste management, part of which is refusal disposal.	440	124	57	24	8	4.13	Affirm

The integral role of residents in ensuring a clean and safe environment has been affirmed with a WMS of 4.05. More so, it was acknowledged that the agency has a sensitization scheme. Respondents were further

asked to list about five ways the agency gets information across to residents. The responses bordered on Radio, TV, newspapers/magazines, handbills/posters, town announcements and lots more. Descriptively, respondents were asked to rank the utility of these media. Table 4 has the details.

Table 4. Information Dissemination Channels

Nature of response	Medium	Responses in mean score					WMS	Decision
		SA	A	N	D	SD		
Item 6: The agency uses the following media to reach residents on waste management schemes	TV	320	120	84	30	21	3.63	Affirm
	Radio	300	80	61	64	19	3.31	Affirm
	Newspaper/ magazine	150	68	120	62	40	2.78	Negate
	Town announcements	220	92	114	84	20	3.35	Affirm
	Posters/handbills	120	60	90	136	73	3.03	Affirm
	New media	385	112	69	40	10	3.90	Affirm
	All of the above	150	108	60	60	51	2.71	Negate

The radio, TV and town announcements appear to be more frequently used for sensitization by the agency.

Table 5. Understanding of Audience Composition

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 8: The agency's communication strategy acknowledges that the composition of residents of Rivers State is mixed	400	80	80	40	18	3.91	Affirm

Data analysis reveals an understanding of the audience composition of Rivers State residents.

Table 6. Languages used in Messages

Nature of response	Medium	Responses in mean score					WMS	Decision
		SA	A	N	D	SD		
Item 9: The agency's messages are crafted in the various languages	English	400	80	45	40	23	3.72	Affirm
	Pidgin	500	60	60	46	3	4.23	Affirm
	Kalabari	50	40	30	120	80	1.58	Negate
	Ikwerre	55	28	60	60	245	2.83	Negate
	Ogoni	40	20	60	80	200	2.53	Negate
	Igbo	75	40	60	160	33	2.33	Negate
	Yoruba	60	52	90	120	43	2.31	Negate
	Hausa	50	60	30	160	43	2.17	Negate
	Ogba	75	40	60	154	72	2.54	Negate
All of the above	50	80	54	120	50	2.24	Negate	

English and pidgin appear to be the predominant languages for environmental campaigns by RIWAMA.

Table 7. Interpersonal communication channels

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 10: The agency passes through traditional rulers, religious leaders, community leaders, elders etc to disseminate messages across to residents	45	48	60	60	87	1.89	Negate

Community leaders, traditional rulers as well as religious leaders are hardly used for message dissemination by the agency.

4.2. Section B – Residents

Out of the three hundred and eighty five (385) copies of the questionnaire distributed, three hundred and sixty two (362) were duly completed and returned thus showing a return rate of 94%. This formed the basis for computation.

Table 8. Demographic Composition of Respondents (Residents)

Sex	Frequency	Percentage
Male	201	56%
Female	161	44%
Education	Frequency	Percentage
University	108	30%
Post primary	163	45%
Primary	91	25%
Occupation	Frequency	Percentage
Civil servants/Corporate staff	80	22%
Self employed	131	36%
Unemployed	151	42%

The demographics of residents bore a semblance of those of the cognate staff of RIWAMA but with slight variations in terms of occupation.

Table 9. Awareness of RIWAMA's goals and programmes

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 1: I am aware that RIWAMA is the agency concerned with the management of waste in Rivers State	1025	440	60	34	10	4.33	Affirm
Item 2: I am also aware of their programmes on proper waste disposal	810	432	150	44	20	4.02	Affirm

Awareness of RIWAMA's goals and programmes is remarkably high among residents.

Table 10. Sources of information on RIWAMA

Nature of response	Medium	Responses in mean score					WMS	Decision
		SA	A	N	D	SD		
Item 3: I have had their campaign on:	TV	790	280	180	60	44	3.74	Affirm
	Radio	1065	280	120	40	19	4.21	Affirm
	Newspaper/ magazine	400	224	120	120	126	2.73	Negate
	Town announcer	340	288	180	124	100	2.85	Negate
	Posters/ handbills	250	160	114	160	154	2.31	Negate
	New media / internet/social media	310	200	90	160	140	2.49	Negate
	Road shows	240	260	120	178	120	2.53	Negate
	All of the above	150	30	150	134	200	1.83	Negate

Analysis from table10 shows a preponderance of radio and television as sources of information on RIWAMA by residents.

Table 11. Message clarity

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 4: The campaign is clear on where I should dispose of my refuse, when I should do same and how	1100	280	120	40	12	4.29	Affirm

Responses on the clarity of RIWAMA messages by respondents tilted towards the affirmative.

Table 12. Frequency of messages

Nature of response	Frequency	%
Daily	80	22
Weekly	164	45
Monthly	82	23
Quarterly	20	6
Annually	16	4
Total	362	100

The frequency of the message as observed by respondents appears to be more of a weekly episode.

Table 13. Campaign language and awareness of the mobile App of RIWAMA

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 6: I am satisfied with the language of the campaign	935	320	90	50	40	3.96	Affirm
Item 7: I am aware of the agency's mobile app	300	80	36	60	240	1.97	Negate

Data presentation shows widespread acceptability of the language of RIWAMA's campaign. Conversely, ignorance of its mobile app as embellished in the new media was found to be high among residents with a WMS of 1.97.

Table 14. Compliance and Prosecution

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 8: I see people comply with the refuse disposal instructions of the agency.	270	152	63	160	16	2.24	Negate
Item 9: People hardly comply because offenders/defaulters are hardly prosecuted by the agency.	600	192	144	184	42	3.21	Affirm

Compliance appears to be low due to the absence of the carrot and stick principle.

Table 15. Replication of RIWAMA's scheme at the national level

Nature of Response	Responses in Mean Score					WMS	Decision
	SA	A	N	D	SD		
Item 11: Nigeria will be cleaner if the programmes of RIWAMA are replicated at the national level with proper monitoring and implementation	500	200	180	172	66	3.08	Affirm

Affirmation in the light of the above holds sway though marginally.

4.3. Discussion

A synthesis of the data reveals widespread awareness of the core mandate of RIWAMA by both staff and residents. This awareness, it was also found, manifests in their programmes on proper waste disposal. Concerning channels of information dissemination, the TV, radio, town announcements and the new media were found to be most frequently used with radio/TV as the most popular with a WMS of 4.21 and 3.74 respectively. This no doubt serves to corroborate Omoshue and Asadu (2016) who citing the Cross River State example found that an intensified communication programme to sensitize and mobilize the residents of Calabar municipality entailed the use of radio, television, newspapers, billboards, posters, handbills and flyers.

In the case of RIWAMA, however, table 10, shows that newspapers/magazines, posters/handbills, road shows etc were hardly found to be used. Interestingly, the environmental communication strategy of RIWAMA was found to take into cognizance the audience composition of residents of Port Harcourt. This was found to have reverberated positively on the clarity of the message as embellished in its language. Descriptively, campaign messages of RIWAMA were cast in English and pidgin as shown on table 6.

Findings also revealed that the environmental campaign strategy of RIWAMA played down on interpersonal communication channels. The implication however is that their message flow hardly passes through traditional rulers, religious leaders, community leaders and elders. Ironically, the efficacious nature of interpersonal modes of communication can never be played down. Usua (2016) in the light of the foregoing posits that “in raising issues and creating awareness for the purpose of changing attitude, interpersonal and participatory communication is very useful” (p.248).

The frequency of the campaign messages of RIWAMA was found to be low as shown on table 10 while awareness of its mobile app was equally found to be low. This finding ironically does not hold many prospects for the agency.

In spite of the affirmation that the campaign messages of RIWAMA are clear on where, when and how to properly dispose of refuse, correspondence of action in terms of compliance by residents was found to be low with a WMS of 2.24. It was however inferred that people hardly comply because offenders are hardly prosecuted by the agency. It was further extrapolated that the near absence of fear/threat appeals in the campaign messages of RIWAMA could directly or remotely contribute to this low compliance level. For campaign messages to really engender compliance, the carrot and stick principle may sometimes become inevitable. This strategy according to Omoshue and Asadu (2016) citing the Cross River State example observe that “various slogans, some frightening but with penetrating effects were used to communicate to the urban residents the urgent need to keep Calabar clean and the repercussion that would follow non-compliance” (p.57).

Deductively, the dynamics of the environmental campaign strategies of RIWAMA reveal great strengths in terms of an understanding of the audience demographics, message clarity and language. The inference by

projection is that a replication of this model, with salient adjustments, at the national level would inadvertently lead to a cleaner Nigeria. The incontrovertibility of the foregoing rests on the truism that communication is a precondition for behaviour change.

5. Conclusion

The environmental communication strategies of RIWAMA have engendered great awareness and sensitization of the citizenry on the core mandate of the agency as well as its integral programmes. This awareness has been predominantly generated through the mainstream channels of communication such as Radio and TV. Descriptively therefore the strategies have yielded much in terms of awareness but significantly little in terms of compliance probably due to the near absence of interpersonal channels of communication and the non inclusion of fear/threat appeals in its campaign messaging.

5.1. Recommendations

The findings of this study have revealed great insights on the strengths and weaknesses of the environmental communication strategies of RIWAMA. It is in view of the foregoing that the following recommendations have been made.

1. Concerted efforts should be geared towards according priority to interpersonal channels of communication bearing in mind their propensities to subtly influence attitudes which would inadvertently engender the acculturation of favourable dispositions. This no doubt is a precondition for behaviour change.
2. Since RIWAMA is a statutory agency of the government, its statutes especially those that boarder on fines and prosecution should be incorporated into its environmental communication strategy so as to instill the consciousness of prosecution into the minds of the citizenry. Conversely, this will in the long run engender compliance. On the other hand, the political will to prosecute those who violate environmental laws should be mustered by the management of the agency.
3. The benefits of a clean environment and the dangers of a dirty environment should be overtly enshrined in the campaign messaging so that the citizenry can wholesomely key into these benefits and in the long run manifest non-coercive compliance bearing in mind the truism in the aphorism, that a 'clean environment is a safe environment'.

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