



**PLACE-ATTACHMENT AND PRO-ENVIRONMENTAL
BEHAVIOUR: A CASE-STUDY OF HOUSEHOLD SOLID
WASTE MANAGEMENT IN URORA, BENIN CITY, NIGERIA**

By

Hope Uhunmwonsere Iyawe

A thesis submitted to the faculty of Engineering and Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

Johannesburg, 2019

Declaration

I declare that this thesis is my own unaided work. It is being submitted for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university.

Part of this thesis has been presented at the IGU-UGI International Geographical Union's annual conference on Local governance in the new urban agenda, in October 2017, at Salento, Italy with the title "Opportunities to tackle apathy in urban solid waste in Urra, Benin City, Nigeria". Secondly, I submitted the manuscript with the title "Place attachment and pro-environmental behaviour paralysis: A study of household solid waste management" has been accepted for publication in Volume 9 Issue 1 by the Journal of Construction Project Management and Innovation (JCPMI).

A handwritten signature in black ink, appearing to read 'A. H. H. H.', written over a horizontal dotted line.

(Signature of candidate)

24th day of July 2019

Abstract

Due to increasing urbanisation occasioned by population explosion and the attendant waste management challenges in most developing country-cities, scholars have theorised that residents who exhibit strong place attachment (PA) are likely to embark on pro-environmental behaviour (PEB). This school of thought maintain that their immediate environment is regularly maintained to retain and increase its aesthetic appeal. However, the environmental behavioural patterns of Urora residents – a settlement located on the outskirts of Benin City, Nigeria – contradict this theory. While Urora residents demonstrate strong PA with regular socio-cultural meaning making interactions between them and their habitat, indiscriminate disposal of solid waste both at household and community levels is the normal rather than the exception. In this light, the study applied a combination of direct ethnographic observation methods guided by the principles from (neuro)phenomenology, with focus group discussions among purposefully selected participants to explore the underlying drivers of the apparent co-existence of strong PA with weak PEB. The data were analysed using content analysis/thick description, and phenomenological analysis of the lived-experiences in relation to the indiscriminate solid waste disposal practices. The study finds that residents exhibit strong PA as mediated through rituals such as worship, marriage, burial and community forums, which address issues such as quarrels between neighbours, levies to offset burial expenses, and degraded surroundings. However, these practices do not translate into PEB. Instead, the study finds that, in the absence of municipal waste services such as communal waste collection bins, residents engaged in anti-environmental practices such as open-air burning, *ad hoc* landfills, and indiscriminate waste disposals in open fields, street corners, and secluded nooks and crannies. The study also finds that rituals could be used to bridge the disconnect between PA and PEB. This is because both religious and traditional worship leaders, as key stakeholders, have the unique leverage needed to drive the agenda of ensuring effective solid waste management in Urora. This assertion is premised on the fact that despite having a population of less than 50 000 residents, Urora is host to 36 public worship centres, apart from private and individual altars.

Keywords: Place-attachment, pro-environmental behaviour, solid waste and (neuro)phenomenology

Acknowledgements

I would like to acknowledge my family members, my wife Martina, and children Immanuella, Anointing, Goodnews and Immaculata, for their encouragement, since they had to continue facing life's challenges without the physical presence of their husband, father and breadwinner. Thank you to my brothers, Roy, Chris, Simon and Stanley, who provided the needed funds for the electronic gadgets for harvesting the information for the study. For my mother who struggled with life, and would have wished her son be by her side during her last moments on earth - this work is dedicated to you.

My sincere appreciation goes to my supervisor, Professor Daniel Irurah, who introduced phenomenological philosophy and the related fields of neuro-phenomenology and neuroscience to me as a medium of research, theory, method, analysis and interpretation. I cannot forget your worry and concerns when the going was tough, or the material you recommended. Your academic support and encouragement were terrific. In the same vein, my sincere thanks go to other academic staffers of the School of Architecture and Planning; Prof. Mfaniseni Sihlongonyane, Prof. Aly Karam, and the new head of school, Prof. Nnamdi Elleh, for your academic assistance.

Thanks also go to my friends, Prof. Emmanuel Achuenu, Dr. Brian Boshoff and Dr. Eromose Ebhuoma, for finding time to go through my work at very short notice; Dr. Augustine Osawaru, for your encouraging words and the provision of material, Prof. S. K. Omorogbee of the sociology department of the AAU; Dr. Cyprian Bella-Omunagbe, for your encouraging words when the going was tough; Mr. Andrew Chakane, the librarian, for always assisting me with work space; Dr. V. Dibua, for your initial words of encouragement, and also for introducing me to your network of friends without whom the research would not have been a success. Your network took me to Prof. Ernest Ugiagbe of the department of social work at Uniben, who assisted me with copies of *Reliance*, a community newspaper; Ernest led me to Prof. Konkure Eghafona, of the department of anthropology and sociology at Uniben; she allowed me unlimited access to her library. She introduced me to the Director of the Institute of Benin studies for more research information which informed, and influenced the production of the thesis.

I am indebted to Mr. and Mrs. Adegboyega Maziseyi for the provision of Garmin hand-held GPS 62, 2013 edition, for taking readings of the Northings and Eastings of the settlement, which later metamorphosed into the drawing of the map with the accompanying PA features.

My thanks is also due to the residents of Urora community, led by the chief priest of *Ogbeodeyaen*, Chief Ugiagbe Ekwuase, for your hospitality and assistance throughout my stay in your domain.

To my friends and colleagues, Drs. Sechaba, 'Muyiwa, Valentine, Morgen, Stella, Toba, Emmanuel, Calistus 'Yemi, 'Remi, Rex and Taiwo: it has been a period of partnership, encouragement and fruitful engagement.

Finally, I would like to acknowledge the assistance of my employer, the Auchi Polytechnic, for granting me study leave with pay. To the authorities of the University of the Witwatersrand I am much obliged for awarding me the Postgraduate Merit Award for three consecutive years. Without it, the thesis would have remained a dream.

Table of Contents

DECLARATION	I
ABSTRACT	II
TABLE OF CONTENTS.....	V
LIST OF TABLES	XI
LIST OF FIGURES	XIV
LIST OF BOXES.....	XVII
LIST OF ACRONYMS	XVIII
INTRODUCTION	1
1.1 MOTIVATION OF THE STUDY: THE CASE OF URORA, BENIN CITY, NIGERIA-----	1
1.2 BACKGROUND: URORA AND THE PROBLEM OF WASTE MANAGEMENT AROUND THE WORLD-----	2
1.3 SOME PHENOMENOLOGICAL AND NEUROPHENOMENOLOGICAL INSIGHTS -----	8
1.3.1 Neurophenomenology.....	12
1.3.2 Problem Statement	14
1.3.3 Research Aim and Question	19
1.3.4 Objectives	19
1.3.5 Research sub-questions	20
1.3.6 Assumptions	21
1.3.7 Delimiting the scope of the study	21
1.3.8 Definition of key terms of the study	23
1.3.9. Structure and Outline of the Thesis.....	28
LITERATURE APPRAISAL.....	32
2.1 INTRODUCTION-OVERVIEW OF THE THEORETICAL FIELDS-----	32
2.1.1 Tragedy of the commons	32
2.1.2 Schemas and Frames.....	34
2.1.3 Phenomenology-neuroscience.....	35
2.1.4 Neurophenomenology.....	37
2.1.5. Neuroscience.....	41

2.2. RITUALS, RELATED PRACTICES AND CULTURAL NEURO-PHENOMENOLOGY	45
2.3. PLACE ATTACHMENT (PA) AND LIFESTYLES	49
2.4. HISTORY OF FILTH AND PHILOSOPHY OF AESTHETICS IN CONNECTION TO COLONISATION AND URBANISATION IN NIGERIA	51
2.5. PEB AND ENHANCED ATTITUDES	53
2.6. HHWM ATTRIBUTES	55
2.6.1 Bottom-Up approaches to waste management	59
2.7 ENVIRONMENTAL PSYCHOLOGY AND HHWM	60
2.8. CONCEPTUAL FRAMEWORK OF THE PA, PEB, HHSWM DISCOURSE	63
RESEARCH DESIGN AND METHOD OF STUDY	66
3.1 RESEARCH STUDY LOCATION AND CONTEXT	67
3.1.1 Description of research methods in steps	67
3.1.2 Overview of the case-study settlement	70
3.1.3 The Site: Uroa Quarters, Benin City, Nigeria	71
3.1.4 Population, climate and religious inclinations of residents	73
3.1.5 Socio-political factors	75
3.2 METHODOLOGY ADOPTED FOR THE STUDY	78
3.3. DATA AND EQUIPMENT NEEDS	79
3.4 PRIMARY DATA SOURCES AND DATA PRESENTATION	79
3.4.1. Point data using Garmin (GPS)	81
3.4.2. Questionnaire survey	82
3.4.3. Ethnography-based observation methods and tools	82
3.4.4. Focus group Dialogues	97
3.4.5. Phenomenologically guided interview	98
3.5. SECONDARY DATA SOURCES	103
3.6. DATA ANALYSIS TECHNIQUES AND PRESENTATION	104
3.6.1. Ethical Considerations	105
PLACE ATTACHMENT FEATURES AND THE AWARENESS OF WASTE CONDITION	107
4.1 INTRODUCTION	107
4.2 DATA OVERVIEW AND PRESENTATION	109
4.3 FAMILY AND COMMUNITY RITUALS	111

4.3.1. Daily prayers, family hygiene and sanitation	112
4.3.2 Weekly Prayers.....	116
4.3.3. Compound hygiene and sanitation	118
4.3.4. Weekly church gathering, service/programmes.....	119
4.3.5. Marriages and burial	122
4.3.6. Feasts and Festivals	127
4.4 SIGNIFICANCE OF RITUALS IN ENHANCING BONDING AND A SENSE OF BELONGING	130
4.4.1 Bonding- emotional link to community.....	130
4.4.2 Bonding- attachment and commitment.....	135
4.4.3 Bonding – involvement in communal affairs	140
4.4.4 Belonging-belief in community rules and connectedness	142
4.5 INDIVIDUAL AND COLLECTIVE AWARENESS OF WASTE CONDITION AND EFFECTS ON BELONGING	143
4.5.1 Individual awareness of the waste condition	144
4.5.2. Collective awareness of the waste conditions	146
4.5.3. Waste condition and Belonging.....	148
4.6. LIVED EXPERIENCES AND CONSCIOUSNESS OF HEADS OF HOUSEHOLDS ON PA DIMENSIONS.....	151
4.7 SUMMARY OF FINDINGS.....	155
4.7.1. Religion, rituals and community	156
4.7.2 PA and waste condition	160
PEB CONSTITUENTS, WASTE CONDITION AND PUBLIC HEALTH	163
5.1 INTRODUCTION.....	163
5.2 DATA OVERVIEW AND PRESENTATION	164
5.3 INDISCRIMINATE WASTE DISPOSAL EVIDENT IN THE SETTLEMENT	167
5.3.1 Open-air burning.....	168
5.3.2 Compound waste dump	171
5.3.3 Shallow burial	172
5.3.4 Public open spaces.....	173
5.4 COMPOSITION OF WASTE AT GENERATION AND DISPOSAL POINTS	177
5.4.1. Composition of waste at generation	178
5.4.2. Composition of waste at disposal points	186
5.5. EFFECT OF 'WASTE CONDITION' ON PUBLIC HEALTH AND INFRASTRUCTURE.....	192

5.5.2 Public health	195
5.5.3 Infrastructural facilities	197
5.6. LIVED EXPERIENCES AND CONSCIOUSNESS OF HEADS OF HOUSEHOLDS ON PEB/WASTE DIMENSIONS-----	199
5.6.1 Demographic information of heads of households	199
5.6.2 Significant statements.....	200
5.6.3 Themes of PEB/Waste.....	205
5.6.4 Textural descriptions.....	211
5.6.5 Structural descriptions	216
5.6.6 The essence of the PEB/waste outlook.....	216
5.7. KEY SUB-FINDINGS AND RELATED CONCLUSION -----	217
DRIVERS OF CONTRADICTION/CONFORMING CONDITIONS AND SUB- FINDINGS	220
6.1 INTRODUCTION-----	220
6.2 DATA OVERVIEW AND PRESENTATION -----	220
6.3 CURRENT PATTERN OF PA <i>VERSUS</i> WASTE CONDITION-----	220
6.3.1 Heterogeneous/multi-lingual community	224
6.3.2. Living condition/attitude of residents	225
6.3.3 Climatic conditions.....	226
6.3.4 Absence of waste management facilities	227
6.3.5 <i>Laissez-faire</i> attitude of Government	228
6.4 DRIVERS OF CONTRADICTION AND CONFORMING INTERACTIONS IN PA AND WASTE CONDITION-----	229
6.4.1. Religious and traditional institutions	229
6.4.2 Cognitive dissonance, language and peer group influence	233
6.5 CASE STUDIES OF 5 HEADS OF HOUSEHOLDS CONCERNING CONTRADICTION AND CONFORMING CONCERNS IN THE SOLID WASTE STORY EPISODE -----	233
6.6 ENHANCED WASTE MANAGEMENT AND IMPACT ON PA -----	242
6.6.1 Stakeholders meeting	243
6.6.2 Government/Municipal role	245
6.7. SUMMARY OF FINDINGS-----	248
CONSOLIDATION OF FINDINGS CONCLUSIONS AND RECOMMENDATIONS	249

7.1 INTRODUCTION AND STRUCTURE	249
7.1.1 Research objectives.....	249
7.1.2 Research sub-questions	250
7.2 INDISCRIMINATE WASTE DISPOSAL PRACTICES, THE COMPOSITION OF WASTE AND EFFECT ON PUBLIC AND INFRASTRUCTURAL FACILITIES	252
7.2.1 PA constituents for Urora settlement.....	252
7.2.2 Significance of rituals in enhancing bonding and sense of belonging.....	255
7.2.3 Individual and collective awareness of the waste condition and its influence on belonging.....	257
7.3. PEB/WASTE COMPONENTS FOR URORA SETTLEMENT	258
7.3.1 Indiscriminate waste disposal practices	258
7.3.2 Composition of waste at generation and disposal points	261
7.3.3 Effects of the 'waste condition' on public health and infrastructural facilities.....	261
7.4 CONTRADICTION/CONFORMING DRIVERS AND MODIFICATION OF DRIVERS TOWARDS ENHANCED WASTE MANAGEMENT AND IMPACT ON PA.....	262
7.4.1 Contradictory/conforming drivers in PA and PEB discourse	264
7.4.2 Drivers which sustain the contradictory or conforming of interaction in PA <i>versus</i> waste condition.....	266
7.4.3 Modifying drivers towards enhanced waste management practices and impact on PA	268
7.5 RELATIONSHIP BETWEEN THE RESEARCH QUESTION, CONCEPTUAL FRAMEWORK AND THE METHODOLOGY, CONTRIBUTIONS TO KNOWLEDGE, LIMITATIONS, AREAS FOR FURTHER RESEARCH AND CONCLUSIONS	268
7.5.1 How the conceptual framework supported the resolution on the research question.....	269
7.5.2 How did the methodology facilitate resolution of the research question?	270
7.5.3 Contributions to knowledge.....	272
7.5.4 Challenges and limitations of the study	273
7.5.5 Conclusions	275
7.5.6 Recommendations for further research.....	277
REFERENCES	279

APPENDICES	293
APPENDIX 1: Key Informant interviews.....	293
APPENDIX 2: Purposeful Sampling.....	299
APPENDIX 3: Using handheld GPS Unit for the Fieldwork	301
APPENDIX 4: Fieldnotes	305
APPENDIX 5: Focus group dialogues.....	307
APPENDIX 5a: Table for focus group discussion 1	308
APPENDIX 5b: Table for focus group discussion 2.....	310
APPENDIX 6a: Heads of households and families interview 1	318
APPENDIX 6b: Heads of households and families 2.....	321
APPENDIX 6c: Interview guide to families and households	323
APPENDIX 7a: SOLID WASTE INDICATOR/BENCHMARK FOR URORA RESIDENCE.....	324
APPENDIX 7b: SOLID WASTE INDICATOR/BENCHMARK FOR URORA RESIDENCE/ENVIRONS	326
APPENDIX 7c: Waste composition per capita and in percentage	327
APPENDIX 8: Anatomical and functional mapping of the human brain	328
APPENDIX 9: Ethics Clearance Certificate.....	329

List of Tables

Table 1.1: Varela's Phenomenological Reductionist approach to the study of consciousness-----	13
Table 2.1: An Integrative model of the major aspects and dimensions of religion -----	45
Table 2.2: Types of Rituals-----	48
Table 2.3: Four quantitative indicators for the physical components of a solid waste management system-----	56
Table 2.4: Criteria used to assess indicator 1C; Quality of the waste collection and street cleaning service-----	57
Table 3.1: Age groups of Uroora community -----	74
Table 3.2: Temperatures, relative humidity and precipitation of Benin City-----	75
Table 3.3: Overview on application of ethnographic-based observation/phenomenological methods to research questions-----	85
Table 3.4: Overview on interview guide/questions and research tools on PA sub-questions -----	92
Table 3.5: Overview on interview guide/questions and research tools on PEB/waste sub-questions -----	94
Table 3.6: Overview on interview guide/questions and research tools on conforming sub-questions -----	95
Table 4.1: Summary of participants for the purposeful questionnaire survey ---	109
Table 4.2: Thematic data analysis using themes and sub-themes of PA -----	112
Table 4.3: Summary on interview analysis with research tools on family and community rituals -----	114
Table 4.4: Religious place of worship and location in Uroora-----	120
Table 4.5: Summary of significance of rituals in enhancing bonding and belonging -----	132
Table 4.6: Summary of individual and collective awareness of waste condition	144
Table 4.7: Some significant statements on PA activities by Heads of Households -----	152
Table 4.8: Summary of PA activities with theoretical/interpretative perspectives -----	157
Table 5.1: Thematic Data analysis using themes and sub-themes of PEB-----	165

Table 5.2: Solid waste indicator/benchmark for Urora residents -----	166
Table 5.3: Method of solid waste disposal in Edo state -----	167
Table 5.4: Summary of interview analysis and data of waste disposal practices -----	169
Table 5.5a: Summary of indiscriminate waste disposal activities with theoretical/interpretative perspectives -----	175
Table 5.5b: Summary of waste composition with theoretical and interpretative perspectives-----	176
Table 5.6: Summary of interview analysis and research data of waste composition -----	178
Table 5.7. Waste composition per capita and in percentage of a Christian family, medium income of population of 3 persons off Idunmwunowina Street ----	180
Table 5.8: Waste composition per capita and in percentage of a Christian family, medium income, a population of 5 along Ogiegor Street-----	183
Table 5.9: Waste composition per capita, and in percentage, Muslim family, low- income, a population of eight, at Aideyanba Quarters -----	184
Table 5.10. Waste composition per capita and in percentage, Christian family, medium-income, a population of 7, off Idunmwunowina Street -----	184
Table 5.11: Waste composition per capita and in percentage, Christian family, low- income, a population of 7, at Aideyanba -----	185
Table 5.12a: Summary of interview analysis and data on waste condition -----	193
Table 5.12b: Summary of waste condition with theoretical and interpretative perspectives-----	194
Table 5.13: Demographic information of heads of households interviewed -----	200
Table 5.14: Selected examples of significant statements of heads of households in mother-tongue language on PEB, and related formulated meanings -----	201
Table 5.15: Selected examples of significant statements of heads of households on PEB/waste and related formulated meanings -----	203
Table 5.16: Themes and sub-themes of mother-tongue language with solid waste -----	206
Table 5.17: Themes and subthemes of waste associated with PEB -----	209
Table 6.1a: Summary on interview analysis and research tools on contradictory/conforming sub-questions-----	221
Table 6.1b: Summary of conforming/contradictory activities with theoretical/interpretative perspectives -----	222

Table 6.2a: Summary on interviews of contradictory and conforming drivers and research data -----	230
Table: 6.2b: Summary of contradictory and conforming drivers with theoretical and interpretative perspectives-----	231
Table 6.3: Summary of interview analysis and research data on drivers modified for enhanced PA -----	244
Table 6.4: Summary of enhanced waste management/disposal with theoretical and interpretative perspective -----	247
Table 7.1: PA activities in Urora settlement -----	253
Table 7.2: PEB/waste activities in Urora settlement-----	259
Table 7.3: Contradictory/conforming activities in Urora settlement -----	263

List of figures

Figure 1.1: The tripartite model of place attachment. -----	6
Figure 1.2: Indiscriminate waste disposal along Edebiri/Boundary street, a regular occurrence in the area. -----	8
Figure: 1.3 Neurophenomenology-----	12
Figure 1.4: Generalised mapping of motivational issues -----	16
Figure 2.1: Theoretical fields at a glance-----	33
Figure 2.2: Types of lived experiences, consciousness and their relevance -----	38
Figure 2.3: An Illustration of the extended body -----	44
Figure 2.4: Integrated sustainable ISWM framework-----	56
Figure 2.5: Stage progression of PA and PEB/Waste management Discourse-----	63
Figure 3.1: Map of Nigeria showing Edo as one of the thirty-six states-----	72
Figure 3.2: Contextualising Urora settlement-----	73
Figure 3.3: Overview of research methods and process -----	80
Figure 3.4: Urora Community showing PA features -----	81
Figure 3.5: Phenomenological principles employed in the interview process -----	101
Figure 3.6: Phenomenological perspective of PA, PEB &MW experiential context. -----	103
Figure 4.1: Place attachment domains in relation to social and spatial contexts --	107
Figure 4.2: Satellite Imagery of Urora community-----	110
Figure 4.3: Homestead compound sweeping done on regular basis -----	119
Figure 4.4: Burial event: the gathering of the young and the old from different walks of life (Saturday 25/2/17). -----	123
Figure 4.5: Uniform attire of a social group in a burial event (Saturday 25/2/17) --	123
Figure 4.6: <i>Ogbiro</i> , A sacred tree of spiritual significance.-----	128
Figure 4.7: <i>Ogua-edion</i> A place of worship and honour of the ancestors (Elders sanctuary) -----	128
Figure 4. 8: During the adjudication session for peace to the warring families-----	136
Figure 4.9: Peace restored as warring family members embraced themselves at the end of a mediation session -----	137

Figure 4.10: The foreground of Aroebiemwen shrine, a place/meaning-making centre.	147
Figure 4.11: Almost at an intersection isolated like Figures 4.10 and 4.7 but littered with refuse	148
Figure 4.12: A twin problem of solid waste and flooding along old Benin-Auchi road	150
Figure 4.13: A push-cart waste collector/vendor in search of materials with intrinsic value to extract, process and sale.	151
Figure 5.1a: Burnt remains of waste at the moat by <i>Ohihon Egobi</i> Street off Benin-Abuja express Road.	170
Figure 5.1b: Open-air burning of solid waste in progress along old Benin-Auchi Road.	170
Figure 5.2: Outdoor open public waste dump along Ogiegor street.	172
Figure 5.3: Public open space, the foreground of a moat/burrow pit	174
Figure 5.4: Idunmwunowina Road, off the Benin-Abuja Expressway, a major access road towards the second half of the community.	174
Figure 5.5a: A closer view of Idunmwunowina road note the filthy or dusty nature	187
Figure 5.5b: Old Benin-Auchi road, area mostly submerged during the wet season	187
Figure 5.6a: Idunmwunowina, a major Street.	189
Figure 5.6b: Omorodion/Chairman street, note the layers of loose soil mixed with plastic	190
Figure 5.6c: Burning waste on the moat of Agbabiomo/Osayande Streets	190
Figure 5.6d: Street dumping of refuse along Omorodion/Chairman Street	191
Figure 5.6e: Dumping and burning of waste on the moat overlooking Aduwawa and Idunmwunowina communities	191
Figure 5.6f: On-street dumping of waste on the road linking Urora with Ohovbe community	192
Figure 5.7: Accumulation of waste types at the Moat at Agbabiomo/Osayande road disposal site	196
Figure 5.8: Waste types and accumulation at Edebiri/Boundary Road site	196
Figure 5.9: Old Benin-Auchi Road showing vegetation and the gathering of stormwater	198

Figure 5.10: Osagiede-Agho-Ighekpe Road, A major road in the settlement-----	198
Figure 5.11a and b: A homestead beside an unauthorised (developing) waste dump. -----	214
Figure 6.1: Cattle roaming the streets have become a regular feature in the community -----	225
Figure 6.2: A section of the Benin-Okene-Abuja highway at Urora -----	226
Figure 6.3: Idunmwunowina Road: note the undulating, and littered nature of the road -----	228
Figure 6.4: Waste composition of low-income earner indigene respondent -----	236
Figure 6.5: Waste composition of low-income earner, non-indigene respondent--	237
Figure 6.6: The solid waste story of three householders -----	238
Figure 6.7: waste composition of middle-income earner, non-indigene respondent -----	239
Figure 6.8: Waste composition of medium-income earner, non-indigene respondent -----	240
Figure 6.9: The solid waste story of five householders -----	241
Figure 6.10: Waste composition of middle-income family, non-indigene respondent -----	242

List of Boxes

Box 1: Example 1 of a head of household's textural description of public health issue caused by indiscriminate waste disposal-----	212
Box 2: Example 2 of another of head of household's experience with public health issues-----	213
Box 3: Composite textural description of PEB/waste outlook-----	214
Box 4: Composite structural experience of PEB/waste outlook -----	216
Box 5: The essential structure of PEB/waste outlook -----	217

List of Acronyms

3Rs	Reduce, reuse and recycle
ATR	African traditional religion
BIB	Belonging, identity, and bonding
DIVA-GIS	Computer programme for mapping and geographic data analysis
DoE	Department of Environment
EDSWMB	Edo State Waste Management Board
EI	Elicitation interview
EPI	Environmental performance index
GHGs	Greenhouse gas emissions
HHW	Household waste
HHSWM	Household solid waste management
ISWM	Integrated sustainable waste management
LGC	Local government council
PA	Place attachment
PEB	Pro-environmental behaviour
PhR	Phenomenology reduction
PWOs	Private waste organizations/vendors
RDF	Refuse derived fuel pellets
RTF	Rich text formatted documents
SRF	Solid recovered fuel
SSDIs	Semi-structured-depth-interviews

CHAPTER ONE

INTRODUCTION

“The earth will not continue to offer its harvest, except with faithful stewardship. We cannot say we love the land and then take steps to destroy it for use by future generations.”

Pope John Paul II (1987)

The above quotation from Pope John Paul II reminds us about the dire state of the worlds’ environments, and reminds rural and urban administrators, in particular, in developing countries with limited economic resources to implement sustainable development strategies for their cities, and settlements. We discuss this position under the headings, and sub-headings that follow.

1.1 MOTIVATION OF THE STUDY: THE CASE OF URORA, BENIN CITY, NIGERIA

Despite the numerous policies and programmes that have been introduced to facilitate effective solid waste management, a standard feature in most urban residential areas of developing countries is the prevalence of the indiscriminate disposal of household waste (Chandak, 2010, Khatib, 2011 Wilson *et al.*, 2015). This contradiction is acutely visible in the Urora residential area in Benin City, Nigeria. What is particularly mind-boggling, is the fact that the residents have a deep-rooted bond with their environment which is underpinned by systematic ritual practices (place and people bonding ritual (Mabogunje and Keats, 2004; Kyle and Chick 2007; Kyle, Jun and Absher, 2014)). This community has for over a decade been overwhelmed by persistently high levels of indiscriminate household waste disposal/dumping within its surroundings, where the residents of Urora are the key perpetrators of these acts, rather than some outsiders.

This state of affairs contradicts the theorised relationship between place-attachment (sense of belonging, identity and bonding with a place/community) and pro-environmental behaviour (Wolf, Krueger and Flora, 2014; Scannell and Gifford, 2010a; Vaske and Kobrin, 2001). Getting a better understanding of the factors that sustain this contradiction, would, therefore, be crucial for a more aligned re-conceptualisation of the relationship between place-attachment, waste management, and pro-environmental behaviour from a developing world perspective.

The study, therefore, focuses on the indiscriminate disposal of household solid waste generated by residents of a locality in a manner that exhibits their meaning making processes, which in turn engenders bonding, identity and belonging while at the same time lacking in pro-environmental behaviour (PEB) and attitudes. Given the lived experiences of the residents, the researcher directed attention to the drivers of the seeming contradiction between place-attachment (PA) and PEB through the use of qualitative methods of ethnographic-based observation, and (neuro)phenomenological tools and techniques to reach a better understanding of the disconnect between PA and PEB.

1.2 BACKGROUND: URORA AND THE PROBLEM OF WASTE MANAGEMENT AROUND THE WORLD

Urra, in Benin City is not an exception with regard to the problem of waste disposal; it is a rather ubiquitous problem around the globe, albeit that some countries are *better* able to cope with it than others. As observed in the fieldwork stage of this study, there is apparent neglect on the part of appointed private waste managers, and the state government. This negligence has resulted in enormous mounds of refuse which were visible in the backyards of old and derelict houses in the community. Other notable sites that residents have converted to dumpsites include vacant portions of land of diverse sizes and locations, as well as burrowed pits and moats.

As the waste accumulates over time, it is sorted randomly and openly set ablaze by mothers or children in the open air on the instructions of their husbands/parents, or alternatively out of personal volition. This practice regularly emits smoke that pollutes the neighbourhood, while also contributing to greenhouse gas emissions and, ultimately, to global warming. The continued waste burning practice coupled with the decomposition of bio-degradable waste (especially the leftovers of food substances) emit pungent smells, making such locations unattractive. Since government agencies (state and local-authorities) are unable to manage the waste, they engaged private waste managers, who collect one thousand Naira only (N1 000) from each of the households on a monthly basis (Edo state environmental sanitation bye-law 2010). From the fieldwork, it was learnt that though some residents welcome this development (25% of the residents are reported to have patronised the privatised

service), the majority are yet to accept it. This development explains in part why the environment is littered with uncollected refuse.

Globally, residents and municipal managers are encouraged to pursue programmes and policies aimed at resource efficiency, as well as fostering a clean, healthy, and pleasant living environment for all (UNEP, 2010). The waste management hierarchy, as commonly understood is comprised of five stages of intervention, which are: waste reduction, reuse, recycle, energy recovery and, finally, disposal (Hansen, Christopher and Verbuecheln, 2002).

In most cities of the developing world, collection rates of household waste (HHW) are low, and the reliability of collection services inadequate. The resultant effect is the indiscriminate disposal of HHW in open public places such as school compounds, playgrounds, markets, roadsides, streams, vacant plots, and moats. This problem is more prevalent in high density/socio-economically disadvantaged areas, than in formal neighbourhoods or zones (Ajala, 2011). In a bid to solve the waste problem, developing countries spend about US\$ 46 billion annually, and by the year 2025, this figure could increase to US\$ 150 billion (PROPARCO, 2012). A United Nations Environment Programme UNEP (2010) report estimated the quantity of solid waste produced globally to be 1.7-1.9 billion metric tons annually, while the collection rate is less than 70%. Of this figure, the disposal rate of more than 50% comes through illegal land-fills, open-air burning (within the compound or outside) and open-air dumps (such as along the highway and other open public or private places).

For a long time, the illegal methods mentioned above have been those commonly accessible to most residents in developing countries' cities (Chandak, 2010). Within the broader challenge of inadequate services, increasing urbanisation has significantly compounded the waste problems of such cities. For example, Asia, with six of the world's top ten most populous countries (Bangladesh, China, India, Indonesia, Japan, and Pakistan) will gain an additional 1.25 billion people by 2030 (Shekdar, 2008). With a majority of the additional population expected to reside in urban areas (Hansen, Christopher, and Verbuecheln, 2002 Shekdar, 2008), one can expect a massive intensification of demand in urban services, which in turn calls for a substantial increase in the need for municipal infrastructure, and service investments.

One of the strategic ways of addressing the waste issue would be a change in human behaviour with regard to the mitigation of waste-related environmental impacts as one dimension of pro-environmental behaviour (PEB). To say that urban residents exhibit PEB, would imply that they engage in environmental/resource conservation activities such as reducing waste, as well as increasing reuse, and recycling. Other PEB-oriented actions include signing petitions to foster environmental protection, using public transport rather than private passenger vehicles, increased frequency of visits to nature-rich environments such as forests, contributions to environmental conservation organisations, and environmentally conscious consumption patterns (Hinds and Sparks, 2007, Teisl and O'Brien, 2003).

Furthermore, it means they would be engaged in environmental conservation/preservation, and that their orientation would be redirected towards ecological concerns, thus reinforcing environmentally friendly lifestyles, and values (Nishio and Takeuchi, 2005). Lifestyle is the outward manifestation of the day to day pattern of habits or choices we make, especially about our role and responsibilities within our socio-cultural domains. It is, therefore, a significant dimension of the external manifestation of a sense of self, and identity. For example, the choice to stay in a low-income high-density neighbourhood is likely to be influenced by diverse factors besides financial/economic constraints. Historical, socio-cultural, ethnic, and religious dimensions are likely factors, which would have informed the choice of such a location in the first instance especially in cases where residents cannot afford to relocate to a formal neighbourhood.

A key component of the study is the significance of place attachment (PA) in pro-environmental behaviour (PEB). PA in such lifestyle and behaviour patterns involves identity, bonding, and belonging, as well as the related environmental behaviour (Scannell and Gifford, 2010a). Kyle, Jun and Absher (2014) argue that PA is comprised of three components, which are *cognitive*, *affective* and *conative* elements. The *cognitive* component considers the memories, beliefs, knowledge, and thoughts of the places of interest (place identity). The *affective* component looks at someone's emotional attachment to place, and the *conative* or behavioural facet reflects an individual's drive/desire to maintain relationships/connections to places, as seen in territorial/spatially oriented behaviour patterns (Kyle, Jun and Absher, 2014).

As discussed in Chapter 2, identity theorists such as Scannell and Gifford (2010a) and Ramkissoon, Weiler and Smith (2014) have shown that individuals seek to retain and maintain their sense of being through actions/activities which take place in space and time. This sense of being is manifested in work and leisure, as well as through social interactions, for instance, with friends and family or colleagues. Identity comprises two sets of meanings, which are “defining who one is” and “providing a person with a sense of who one is and how one ought to behave” (Kyle, Jun, and Absher, 2014:1023). “When consistency between the two sets of meanings occurs, identity is successfully expressed and affirmed” (Kyle, Jun, and Absher, 2014:1023).

Scannell and Gifford (2010a) developed three dimensions of PA, which are a person, the psychological process, and place (see Figure 1.1). Given the complexity of person-to-place bonding, many threads tie individuals to their primary places of habitation. Some of these threads/connections are stronger, while others may not be as strong but could be complicated and inseparable. PA thus is the overall feelings, bonds, thoughts, and behavioural intentions that people develop about the social-spatial environments of their primary habitation.

Studies in the domain of social neuroscience have identified the critical role of emotions in the regulation of human cognition, perception, and behaviour patterns, which have fostered/strengthened PA, and reinforced PEB (Damasio, 1998). Scholars in the environment and in society support this finding. Vining and Ebero (2012) and Quелlette and Wood (1998), for example, argue that past behaviour could be a strong predictor of future actions, and behavioural intentions. Similarly, studies carried out by Hinds and Sparks (2007), Davis, Green and Reed (2009), indicate that emotional connection, and identification with the natural environment would contribute significantly to environmental behaviour.

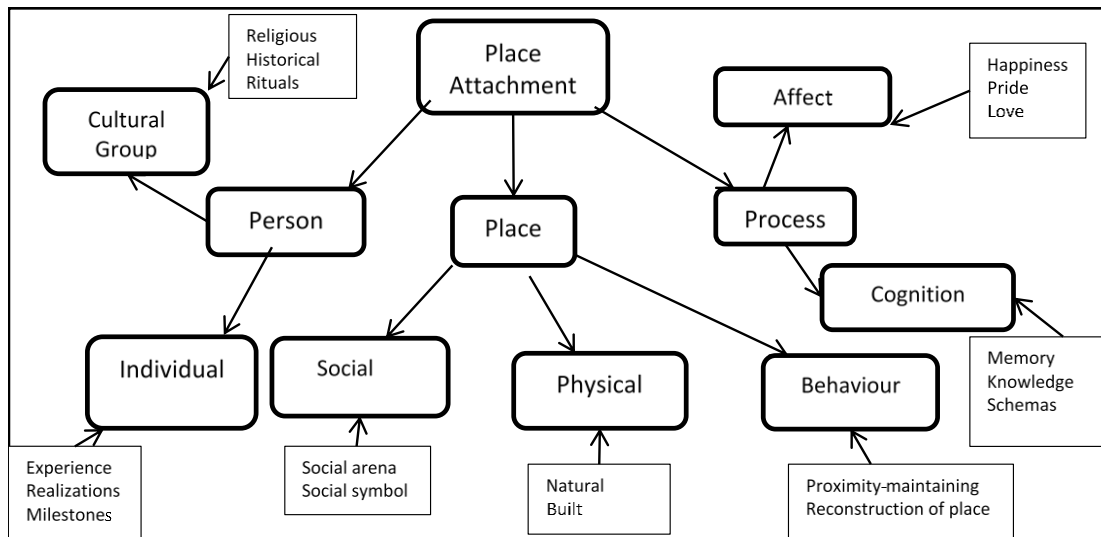


Figure 1.1: The tripartite model of place attachment.
Source: Adapted from Scannell and Gifford (2010a:2)

Considering the scope of studies in social psychology and environmental problems, critical findings highlight the knowledge, habits, and attitudes of city residents as key drivers in recycling behaviour (Schwab, Harton, and Cullum; 2014, Hopper and Nielsen, 1991). Such studies consistently argue that most of those who have a passion for the natural world from early childhood are likely to be inclined to behave in a pro-environmental manner in their adult life. The studies further argue that this fact holds particularly for rural children, who are more likely used to taking care of animals compared to their urban counterparts who are more predisposed to watching television (Hinds and Sparks, 2007; Kellert, 2002; Bunting and Cousins 1985).

The relevance of such Western social models of place attachment (habits, knowledge and attitudes) to the context of waste problems in peri-urban communities in Africa, and other Third World countries has not been systematically evaluated. In one of such studies in Uganda, farmers used a percentage of crop waste for composting (as natural fertiliser), after sorting/separation of crop wastes like cassava/potato/banana peels and vegetable remains (with the intention to feed livestock) (Ekere, Mugisha, and Drake, 2009). Through a simple technology, low-density polyethylene (LDPE) sheets, bags, and water sachets were used to produce LDPE-bonded sand blocks, and pavers (Kumi-Larbi, *et al.*, 2018). The production of biomass briquettes is sourced

from some of the biodegradable organic waste. Non-degradable waste such as plastics (hard and soft), glass, steel, and aluminium is recycled for the re-manufacturing of plastic bottles, crates, chairs, water pipes, plates, bowls, shoes or clothing. Solid recovered fuel (SRF) is used in place of fossil fuel in the cement industry, and refuse-derived fuel (RDF) is sourced from plastic/fibre/organic waste, and used for the supply of electricity in homes (Kupka *et al.*, 2008). Such strategies of resource conservation and conversion in the global North generate employment, and contribute to the reduction of waste collected by municipal authorities as well as related disposal costs, while ultimately contributing to a cleaner environment (PACSA, 2015, Living Earth, 2015).

In contrast to the conversion of waste items prevalent in most developed and some African countries, the state of waste disposal practices prevalent in most Nigerian cities and neighbourhoods is deplorable. The main characteristic of this condition is the carefree attitudes and poor/inadequate management practices which undermine public health and hygiene, as well as exacerbate the already hopeless situation of indecency and quality of life (Ajala, 2012). As at 2011, Nigeria had a population of 158 million (Ajala, 2012), and generated waste at a rate of 0.44kg/cap/day in rural areas, and 0.66kg/cap/day in urban areas (Ogwueleka, 2009). This figure is in line with the waste generation of other third world countries of 0.3-0.9kg/cap/day, as reported in studies such as Khatib (2011). Given these numbers, on average, the country is estimated to generate around 87 million kg (87 000 tonnes) of waste per day. For this reason (among others such as the inadequate waste management infrastructure and services), one is not surprised that the country is ranked 134th (EPI 2014) in the global environmental performance index (covering environmental health and ecosystem vitality indicators), and thus is among the poorest performing countries in the world.

The above statistics capture the association between the human population, the generation of waste, and the level/quality of management strategies. The prevailing low-income conditions of urban residential areas often mean that the average household mainly use unprocessed foods, which in turn translates to the generation of larger quantities of domestic organic waste per capita, compared to higher-income households or residential areas.

In Benin City, especially in the low-income high-density neighbourhoods, and settlements at the fringes of major markets, household waste is primarily generated from water bottles, plastic bags, maize cobs and wrappings, vegetable stalks, cassava/yam/plantain peels, and worn-out kitchen utensils. Other waste types in this regard are used clothes and rags, footwear, and empty cans of processed food products. Human waste, animal carcasses, the droppings of livestock (poultry, goats, birds, dogs, and herds of cattle particularly on the outskirts) which freely roam the neighbourhoods, significantly contribute to the waste burden. From the mix of biodegradable and non-biodegradable items (as biodegradable decay is influenced by the hot and humid weather conditions), offensive odours are emitted and it perpetually engulf the settlements (see Figure 1.2)



Figure 1.2: Indiscriminate waste disposal along Edebiri/Boundary street, a regular occurrence in the area.

1.3 SOME PHENOMENOLOGICAL AND NEUROPHENOMENOLOGICAL INSIGHTS

A major theoretical field anchoring the study is phenomenology, which takes the view that humans are not separated, fragmented and/or reducible, and therefore does not encourage a subject-object dichotomy. Humans are arguably imbued with the collective and individual sense of bonding, belonging, identity, intertwined and entwined with their environment, thus constituting a unity with their world.

In the 1920s, Husserl founded the philosophical study of the structures of experience and consciousness from the perspective of first-person phenomenology (Varela, 1999). Phenomenology, therefore, aims at a precise description of that experience — what perceptual experience is like and, therefore, devoid of additional concerns that might obscure or distort what needs to be understood. In other words, phenomenology is concerned with what seeing is like as compared to hearing, or imagining, or remembering. Thompson (2010) and Wertz *et al.*, (2011) anchor phenomenology in the careful description, analysis, and interpretation of the lived experiences of humans. Three key variables (intentionality, perception and embodiment) are usually employed in phenomenological studies, coupled with the development of narratives for responsive description.

Through a phenomenological lens, intentionality is openness to what constitutes experience, as it involves mental acts of remembering, perceiving, empathising, and imagining. Thompson (2010) argues that there is a close resemblance between the etymological sense of motion (an impulse moving outward), and that of intentionality (as for an arrow directed at a target). Intentionality is more than the mere static relation of about-ness, but a dynamic striving for intentional fulfilment. Genetic phenomenology entails the tracing of intentional striving back to its roots, the lived body, in what Husserl calls “drive intentionality” (*Triebintentionalität*). Thompson (2010, p.364) further argues that Husserl was not entirely sold on the notion of object-directed intentionality, as he introduces a pre-reflective experience that is functional without having to engage in an explicit epistemic acquisition. However, for Satre (2004) the image is defined by its intention. If the intention is taken at its origin, it implies that no matter how crude and bare it appears, it establishes a specific knowledge, as well as a theoretical knowledge of the object. With this understanding in mind, he aims at a specific layer of consciousness (Thompson 2010, pp.470-471).

Hammond, Howarth and Keat (1991), assert that consciousness is intentional, and that there are two inseparable modes of consciousness guided by Husserl’s *noetic* and *noematic modes*. The noetic mode refers to ways in which one experiences something, in other words, the mental act that extends and discloses the object, while the noematic mode pertains to the objects of consciousness. In Husserl’s terminology, *noetic* description pertains to acts of consciousness, but in so doing makes reference

to objects of consciousness. Noematic description pertains to the object as it is given, or the object in its given-ness to consciousness, but in so doing it refers to acts of consciousness. Therefore, if we direct our attention to the appearance of the object more generally, and at the same time, one should have in mind that appearances are objective correlates of subjective intentional acts.

From a phenomenological perspective, when we enter into a relationship with other people, there is a multiplicity of states that we share with them. We share emotions, our body schema, our being subject to pain, as well as somatic sensations. In this context emphasis is placed on the perceptual and affective awareness of others as animate organisms, and thus entails an awareness that is not detached. Thompson (2010) holds the view that it is the brain that harbours cognitive processes, which constitutes the relationship with the living body of the organism and the environment.

Thompson (2003) argues that owing to the absence of a well-developed scientific account of consciousness, especially in relation to brain activity, there exists an 'explanatory gap/hard problem'. There exists a gap because of the seeming discontinuity between the bio-behavioural and abstract, functional characteristics of cognition, and the subjective and experiential aspects of mental processes. To close the gap, Varela (1999) introduced three phenomenological methods (PhR). They are, first, suspending belief or theories about the experience; second, gaining intimacy with the domain of investigation during which attention is changed from the content of experience (*noema*) to the process of experience (*noesis*), and third, offering descriptions and using inter-subjective validations (Varela, 1999).

For the purposes of this study on PA, PEB and HHSWM, three concepts appear to be fundamental for addressing the issue. They are perception, attention and inter-subjectivity. In the context of perception, Merleau-Ponty (1962), argues that the theory of the body schema is implicitly a theory of perception. As long as we have re-learned to feel our body, there comes the objective and detached knowledge of this endeavour called the body. In other words, by conceiving my body as a mobile agent, I can interpret the perceptual appearance of the heap of refuse as it indeed is, since the waste and my body would undoubtedly have form through which I can conceive a system-a-nexus of objective correlation. However, this relationship between the heap

of waste and my body shares no reciprocal experience as the correlate of my body's unity.

With this proposition, Merleau-Ponty claims that the primary perceptual qualities are not in this way constant between oneself and the heap of waste. By so doing, he rejects the "constancy hypothesis" which claims that the primary inputs to consciousness have constancy in their correlation with stimuli, such that the same stimulus will produce the same sensation. In addition to identifying three properties of perception of objects; size, shape and colour, Merleau-Ponty pointed out that, given the empiricist's view, the laws governing these properties to determine the objective size of objects cannot be empirical, for this would involve correlating experiences, size, and the shape of the visual image. Phenomenology of perception must graduate from the worldly philosophy of categories to the categories under which we perceive the world. For Merleau-Ponty, perception thus begins in the body, and through reflective thinking ends in objects.

The 'constancy hypothesis' (as referred to above) implies that attention "illuminates and clarifies" certain given sensations instead of creating a new form. This contrasts with Merleau-Ponty's view that the normal function of attention is a process of composition, rather than copying. In his words: "Now attention has to be conceived on the model of these primary acts, since secondary attention, which would be limited to recalling knowledge is already gained, would once more identify it with the acquisition. To pay attention is not merely further to elucidate pre-existing data, it is to bring about a new articulation of them by taking them as figures" (Merleau-Ponty, 1962, p.35). Horizons perform the concept of attention as they constitute reality in the whole world. The Merleau-Ponty proposition has brought fresh insight into the present discourse as objects, such as moulds of waste or other elements emanating from its disposal (like open burning) which are not only to be identified as independent objects, but to be composed with reference to the horizon.

Regarding intersubjectivity, Husserl (1960) rejects the claim that awareness of others is achieved through inference. Instead he argues that any experience of an objective world already has an appreciation of experiential subjects embedded in it. With this thought, Husserl attempted to develop a theory of empathy as a description of the

foundational appreciation of others being like me yet distinct from me. The bond between “self” and “other” is experienced (motivated by normative virtues to engage in sweeping, the settling of disputes) rather than inferred (belief, and desire not implemented).

1.3.1 Neurophenomenology

Neurophenomenology seeks to articulate through mutual constraints the phenomena present in experience, and the correlative field/reciprocal constraints established by the cognitive sciences (Varela 1996). Ultimately, the strategy is an attempt to combine, and mutually enlighten neural and experiential cognitive processes. Figure 1.3 shows three main elements of neuro-phenomenology, which are (Np1) first- person data (from the careful examination of experience with specific first-person methods); (Np2) as formal dynamic models of these structural invariants, and analytical tools from dynamic systems theory grounded in an embodied enactive approach to cognition, and (Np3) as the neuro-physiological data from measurements

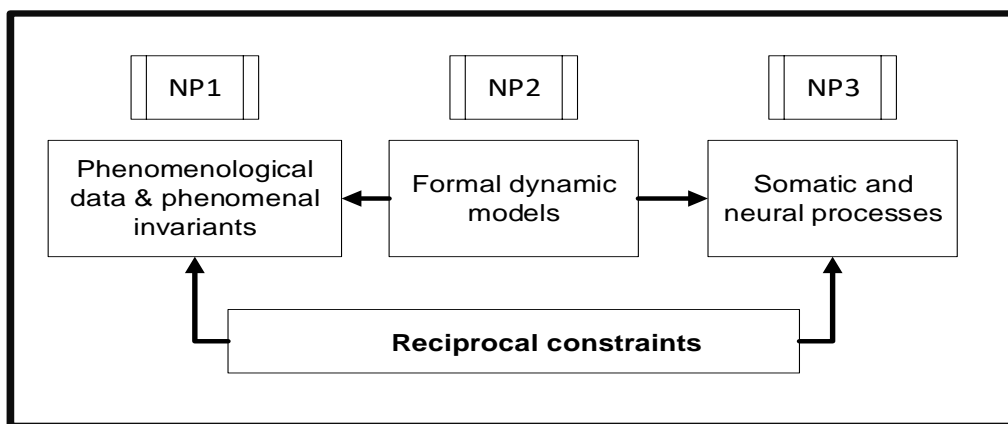


Figure: 1.3 Neurophenomenology
Source: Thompson, (2010) p.330

of large-scale, integrative processes in the brain. Therefore, neurophenomenology aims to incorporate phenomenological investigations of experience into neuro-scientific research on consciousness, as it focuses on the temporal dynamics of conscious experience, and brain activity. Table 1.1 shows Varela’s (1996) characterisation of phenomenological concerns from one stage to another, and the

tasks to be executed (some details of how the necessary steps is achieved can be seen Section 3.4.5. of Chapter 3).

Table 1.1: Varela's Phenomenological Reductionist approach to the study of consciousness

Aspects of Method	Characteristics of resulting examination
Attitude	Bracketing, suspending belief
Intuition	Intimacy, immediate evidence
Invariants	Inscriptions, intersubjectivity
Training	Stability, Pragmatics

Source: Varela (1996), p.338

One of the few attempts in neurophenomenologically-guided studies is reported in Lutz *et al.*, (2002), and focuses on the integration of first-person data with neuro--imaging data. The intention was to explore the synchrony of pattern correlates during a simple visual task with brain dynamics, based on the integration of person-data with electroencephalogram (EEG) data, with the aim of revealing the putative role of synchrony in the composition of transient networks that combine brain processes into highly ordered cognitive functions, such as the top-down processes of attention. The study method presented subjects with the three-dimensional illusion, while recording the subjects' electrical brain activity using an EEG device, and the subjects'/self-reported experience.

The introduction of neurophenomenology seeks to define the actual neural parts of the residents' experience as they engage in lived-world activities. For example, when the study considers the deteriorating environmental conditions, such as the stench from the accumulated uncollected refuse, it could provoke some uncomplimentary impressions on the corresponding brain cortices responsible for the olfactory and gustatory sensory neurons. Finally, the study cannot overlook the health implications of the preceding on the residents as such stench is known to irritate the nose, throat, and eyes.

1.3.2 Problem Statement

Due to the possibility of being infected with health-related illnesses associated with living in proximity to illegal solid waste dump-sites, it has been argued that residents will vacate such settlements for more environmentally friendly neighbourhoods (Ojedokun and Balogun, 2013; Keizer, Lidenberg and Steg, 2008). On the other hand, Scannel and Gifford (2010a), Wilson *et al.*, (2015) and Larson *et al.*, (2015), for example, assert that such residents could vigorously pursue measures aimed at improving their environmental conditions. Following these logics, and owing to the severe health and other associated threats confronting Urora as a result of indiscriminate waste disposal, one would expect the residents to either detach themselves from or vacate such settlements for more environmentally friendly neighbourhoods (Keizer, Lindenberg and Steg 2008), or engage with consistent clean-up practices. The fact that the affected residents continue to reside in their degraded locations, despite the increasingly oppressive environmental conditions posed by waste pollution, and accentuated by seasonal flooding, suggest two possibilities:

- either they are unaffected by what they are experiencing, which means the residents may have developed suppressive mechanisms to absorb (cope with) whatever indignities this provokes, or
- they have been overwhelmed by the consequent stress, and lack the will/opportunities/courage to act on their discontent/disapproval through responsive action. We could, therefore, read their situation as a complex of symptoms of disempowerment, apathy or alienation.

Are they unaware of the public health risk, and environmental degradation posed by the present happenings? Are they “unaware” of the fact that whenever it rains, uncollected refuse at various locations (such as on the/side of roads, moats) blocks drainage channels, thereby contributing to the massive flooding, with severe additional consequences? Such consequences include homelessness, diseases such as malaria, and cholera among others. Studies on the human-environment relationship, for example, (Hinds and Sparks 2007; Davis, Green, and Reed 2009), and household solid waste management (Sujauddin, Huda and Rafiqul, 2009), have often been conducted independently without integrating these two crucial issues within one study. Some of the notable exceptions include Corral-Verdugo (1997), and Li (2003).

When domestic waste mixes with human effluent that flow into the streets, onto sidewalks and form pools at street corners in Urora, a strong stench pervades the whole settlement. Could it be that the residents have become apathetic about such consequences? Is it possible that the residents' sense of dignity becomes subconsciously substituted for something else? Could it be possible that they are discouraged after wishing for something better for too long? Why are they not provoked into doing something that alleviates the situation, especially when faced with inadequate municipal waste-services? Is it possible that indifference to performing a task is contagious too?

Alternatively, is it that they now experience such low levels of self-esteem that they are unmotivated? How else could one explain this, taking into account the seemingly strong place-attachment? How could such symptoms and their underlying causes be understood, and addressed with a view to the city goals and vision of sustainability concerning waste management, and other services?

As alluded to earlier, inhabitants of most developing-country cities/settlements exhibit features such as strong bonding, identity, and belonging, and yet experience a high incidence of indiscriminate household solid waste in their living environments/quarters. This problematic contradiction is contrary to the hypothesised relationship between the mainly Western concepts of PA and PEB that advocates a strong correlation between the two constructs. This hypothesised correlation is disaggregated further to mean the following: conforming - strong PA correlates with strong PEB and corollary weak PA correlates with weak PEB; contradictory - weak PA aligns with strong PEB, just as strong PA aligns with weak PEB. This last hypothesis captures Urora's situation. In most of these settlements, the weakly funded municipalities hardly undertake collection, transfer, and disposal services. In most cases, these functions, including public health and safety, are left to the ways and means of the inhabitants (see Figure 1.4. on motivational issues).

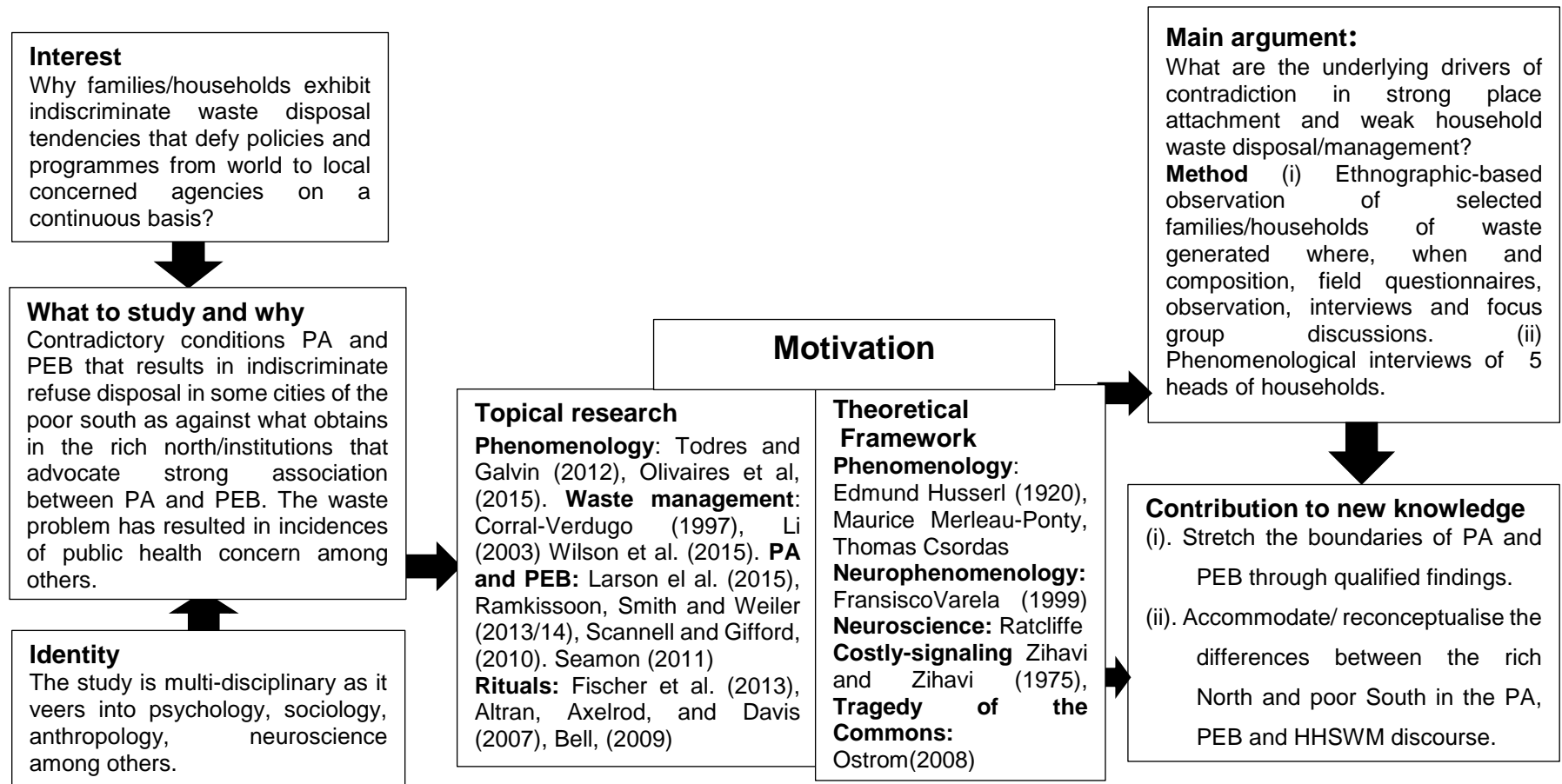


Figure 1.4: Generalised mapping of motivational issues

Communities experience this absence of municipal waste collection services and thus feel forgotten by their local government.

For this reason, the inhabitants have no option than to find own solutions to their waste problems. One should, therefore, not be surprised to find kitchen refuse and garden debris disposed at an illegal dump site in the backyard of some older houses, on vacant land, in burrowed pits or moats. When the refuse accumulates over time, combustible items are likely to be set ablaze, thus emitting smoke that engulfs and pollutes the neighbourhood, and contributes to a certain extent to greenhouse gases and, ultimately, to global warming. As a result, the atmosphere is polluted and makes living conditions unbearable for the dwellers. At newer residences, there are storage bins (in the form of plastic bags) overflowing with all manner of debris and waste on their frontage, which makes such locations unattractive as the decomposing biodegradable waste (especially the putrescible waste) emit a pungent smell that would unsettle any visitor. Also, since some of these residences are fortunate to have borehole water mainly used in the bathrooms, kitchens and the toilets the wastewater from these locations occasionally finds its way to the access roads, thereby causing further deterioration to the already degraded habitat.

Under cover of darkness, people deposit waste on the access roads and at street corners. This habit of irresponsible behaviour with regard to waste disposal is more prevalent at the peak of the wet season when people deposit waste in the stormwater channels, and expect the velocity of the flow to transport it downstream to other less fortunate locations. In some instances, domestic waste is used to fill up areas susceptible to sheet or rill erosion. Perhaps peculiar to this community is littering, or further scattering of waste, which primarily occurs in two ways. Firstly, by the forces of nature, where the North East trade winds and the South Westerly winds blow, transporting with it and spreading waste that is less dense to other places. Secondly, waste scatterers in the community include birds and animals, which scatter and disperse the waste as they scavenge for food. Birds, rodents, and animals roaming the neighbourhood at will contribute in no small measure to waste dispersal, either in concert or individually, as they search for food and habitation.

A more disturbing occurrence at the study location is the presence of a formal cattle ranch in the eastern part, whose activities have caused nightmares for the residents. Apart from related air and noise pollution, the cattle, led by their handlers, invade adjoining farmlands and neighbourhoods in search of pasture and edibles from the waste. Since most of the inhabitants live in unhygienic conditions, there is every possibility that the livestock contributes to the spread of gastrointestinal parasites, worms and related infectious diseases such as cholera, yellow fever, bacillary dysenteries, and typhoid fever, among others.

Benin City has a population of about 1,400,000 (2017 projected from the 2006 population census). At a rate of 0.5kg/day (Oseghale 2011), the city could be generating 70 000kg of solid waste daily. Even though the current statistics for a human development index (HDI) and gross national income (GNI) are not readily available, annual food crops and plants exist that tend to increase and accentuate the amount of waste generated during the wet and dry seasons. These agricultural products include maize, plantains, pineapples, pawpaws and watermelons.

Lenkiewicz and Webster (2017) argue that a relationship exists between human health, and social services. Waste management happens to be one of the services that affect the health of residents in diverse ways. In this regard, therefore, the real gross domestic product (GDP) plays a significant role. The Nigerian National Bureau of Statistics estimates that (for 2017) the real GDP growth of Health and Social Services for Q3 2017 stood at -0.85% (year-on-year) compared to -2.31% for the corresponding period of 2016, which shows an increase of 1.45 percentage points. Quarter-on-quarter, this sector grew by -0.04%. The contribution of Human Health and Social Services to real GDP was 0.66% in Q3 2017, down slightly from the 0.68% recorded in Q3 2016, and down still more from the 0.72% recorded for the preceding quarter of Q2 2017. These figures may likely plummet on a state-by-state basis if urgent steps are not taken to address the rate of indiscriminate waste disposal.

Given the diverse human activities within the settlement, Oseghale (2011) estimates the waste composition to be in the following order: bio-waste (45%), plastics (15%), putrescible waste (8%), paper (5%), glass (5%), metals (5%), textiles (4%) and others (8%). Secondary data on the proportions of re-used or recycled waste are not readily

available. In Benin City, there exist three approved landfill waste sites at *Ikhueniro*, *Iguomo*, and *Otofure*, outside the City boundaries.

As a fast-growing suburban residential community on the outskirts of Benin City in a south-south geopolitical zone in Nigeria, Urora presents a clear example of the contradiction where a strongly-established/inter-woven community with systematic bonding ritual practices (place and people bonding rituals) finds itself overwhelmed by persistently high levels of indiscriminate household waste disposal, and dumping within its vicinity. In this regard, the study prioritised Urora as a paradigmatic case which mirrors similar settlements in developing countries' cities, especially in Africa. The possibility to grasp this contradiction in terms of the human-environment relationship in Urora, therefore, served as an appropriate empirical setting for the study. The understanding derived from the study assisted in the re-conceptualisation of the relationship between place attachment, waste management, and pro-environmental behaviour in general, as presented in Section 7.5 of Chapter 7.

1.3.3 Research Aim and Question

Using a combination of phenomenological insights/principles as mediated by insights from neuroscience, (hence the focus on neurophenomenology) the key research question to guide the study was conceptualised as follows:

What are the underlying drivers of the apparent contradiction in strong sense/experience of place-attachment, coupled with weak household waste disposal/management practices in the low-income residential neighbourhoods of the Urora community? The study, therefore, aimed to ethnographically appraise how individuals, and families of diverse socio-economic and ethnic/religious backgrounds perceive and make meaning of (understand) the waste condition in their settlements, given their strong sense of PA. The problem of resolving the research question was addressed through the sub-findings of the following objectives, and sub-questions:

1.3.4 Objectives

- Identify household waste-disposal practices and resultant 'waste conditions' at different settlement scales.

- Assess the awareness/perception of residents of current waste practices, and their relationship with the 'waste condition'.
- Explore the place-attachment/community, and their sense of belonging through related ritual practices.
- Explore the presence or absence of 'waste condition' awareness as part of the feeling/experience of place attachment.
- Explore the co-existence of strong place-attachment with weak practices in household solid waste management, and possible underlying drivers.
- Assess the significance of the overall findings on place attachment and pro-environmental behaviour hypotheses.

1.3.5 Research sub-questions

PA sub-questions

- What are the commonly shared rituals at family and community levels in the settlement?
- What is the significance of these rituals in enhancing bonding, and a sense of belonging in the settlement, in Uroa, and in Benin City in general?
- What is the level of individual and collective awareness of the waste-condition, and how does this knowledge influence the sense of belonging?

PEB/Waste sub-questions

- What are the individual, and household-level waste disposal practices evident in the settlement?
- What are the different compositions of waste at generation and the different disposal points?
- What are the awareness levels of 'waste condition' impacts on public health and infrastructural facilities/services in the settlement?

Contradiction/conforming sub-questions

- What is the current pattern of PA versus waste- condition (contradiction -strong place attachment and weak/poor waste management/ disposal practices, or conforming-strong place attachment and strong waste management disposal practices)?
- What could be the underlying drivers which sustain/drive this “contradictory” or “conforming” interaction in PA versus waste- condition?
- How could the underlying drivers be modified towards enhancing waste management/disposal practices, and how could this impact on PA?

1.3.6 Assumptions

The co-existence of strong place-attachment with weak pro-environmental behaviour could be rooted in misaligned meaning, and values of what constitutes waste. In particular, the association of waste with other social-negatives/biases such as gender and class/status, indifference to the effects of indiscriminate waste disposal such as inaccessible roads due to flooding, could be critical drivers. The handling of waste in the study community can, therefore, be viewed as gender and status-aligned. This outcome could thus be viewed as arising from a combination of roles, especially where waste primarily emanates from kitchen- activities and processes. Given an alternative worldview where waste and its resource- value is understood, it is most likely to attract adult- male participation, and so encourage better practices across the community as a whole. The ethnographic and phenomenological approach as mediated with insights from neuroscience as prioritised for this study, was informed and guided by this perspective.

1.3.7 Delimiting the scope of the study

This study focused on the apparently strong PA, and seemingly weak PEB in waste management/disposal. This contradiction thus calls for an empirical appraisal of the two critical dimensions of PA, and waste- condition for Urora settlement. Using a combination of ethnography and phenomenological approaches, the study sought to

explore, and understand the contradictions, and inconsistencies in the human-environment dislocations.

As a case study, this research limits itself to a geographical settlement with boundaries, peoples, socio-economic levels, and cultures. However, the study is aware that the settlement is not an island, and that the findings of this case study are important, and relevant to similar places with similar identities, and peculiarities. Therefore, findings of this study can be used to re-conceptualise the waste management policies of low-income group earners living on the outskirts of developing countries' cities.

Guided by very rich literature, the interviews targeted the heads of households/residents who satisfied prioritised PA- criteria, as understood from Figure 1.1, and have resided in the settlement for a minimum of ten years. The study investigated the meaning- making activities of the residents as they engage in their life-world situations. This engagement entails individual and community PA activities (such as prayers, marriages, burials, the settling of disputes, ceremonies, and festivals). It also entails PEB activities like waste disposal practices, the practice/application of the 3Rs (reduce, reuse and recycle), and the (possibility of) conversion of waste to meaningful use. This study limited itself to the possible drivers of the contradiction between PA and PEB, as informed by the core values of urban planning which emphasises comfort, health, safety, and the convenience of the residents, hence the obsession with the effects, and possible benefits to be derived from solid waste disposal. While these core values may not have been explained in details, they have been implied from motivation, objectives, fieldwork, analysis and interpretation of data.

Further, the study is concerned with the ongoing diminishment of the natural habitat as the geographic spread through urbanisation is accompanied by invasion, and the rooting out of the natural habitat and grooves which initially were regarded as sacred. This aspect of desecration is further heightened through illegal dumping and littering by the residents. The residents' inability to sense the 'worth' of the waste through the application of the 3Rs (reduce, reuse and recycle), continuing instead with

contradictory practices such as open-air burning, illegal dumping and shallow burial, is within the purview of this study.

The duration of 16 weeks, and another two weeks during the wet season, for undertaking the ethnographic-based field observation study may have been a short period, but will be sufficient to address the central research question, especially when one of the two most prestigious festivals (*Igue*), observed keenly by the community, overlapped with the fieldwork. Also, other individuals and community ritual activities coincided with the period of the fieldwork.

With regard to ritual and ritual-like performances, the study limited itself to the functionalist (the purpose rituals serve in the community), and interpretive (the nature of ritual as symbolic manifestation of the local cultural worldviews) approaches. The study did not consider structuralism (where concerns are about deep and innate structures of the human mind as they affect myth and related concepts). The use of contentious concepts such as 'critical gap/hard problems', which have received the attention of scholars and researchers alike, and for which common ground is yet to be reached because of varying philosophical interpretations, is thus beyond the purview of the study.

Equally, also beyond the scope of this study are the insights from cognitive and affective neuroscience of object-directed and action-oriented activities which implicate and activate specific neurons and cortices of the brain. While some of the residents displayed specific actions like the open-air burning of waste that emit smoke and foul smells, and make other residents and visitors to look for safe havens, this study noted the negative effects and health impacts on residents but did not entail the articulation of solutions to the observed impacts.

1.3.8 Definition of key terms of the study

Consciousness

It is the result of dynamic interactions among widely distributed neurons of the central nervous system, and, therefore, not localised in a single brain or bodily region. It can, therefore, be understood as the perceptual phenomenon/process which in turn

guides/steers attention. On average, we are conscious of that to which our attention is directed, either internally (within the body) or externally (in our environment).

Cognitive dissonance

In the context of this study, cognitive dissonance is deemed to be demonstrated when the residents' actions/behaviour runs contrary to their belief systems (which encourage cleanliness), and thus opt to tolerate the stench, unsightly/derelict environment of the present situation, which is a consequence of the uncontrolled dumping of waste.

Cosmovision

Within the context of a case study, cosmovision refers to the beliefs and meaning-making systems which inform their structure and practices, thus facilitating for consistent and meaningful lives. Cosmovision, in turn, informs rituals through which the authority of ancestors elders/leaders, native priests, and soothsayers is reinforced. It influences and guides individual and collective understanding of the way things are, and how incoherencies and challenges are to be resolved (Millar *et al.*, 2005). However, this definition needs to be understood in the broader context of cosmovision, as an attribute of any and every social group and individuals, and not as solely limited to indigenous communities or groups.

Desecration

In the context of this study, desecration refers to the violation of commonly known sacred places, primarily as a result of the indiscriminate disposal of refuse, and because this violation has to do with the point of connection with the divine, it can be viewed as sacrilegious.

Essence

A key concept fundamental to the Husserlian approach in the study of human consciousness that refers to that which is common or universal to interviewees – indeed, experienced by everyone, is known as essence. With reference to this study, irrespective of ethnic, religious or income status, stench emanating from indiscriminate

waste disposal, the squalid and decrepit environment is commonly and universally experienced by Uroora residents.

Horizontalisation

An understanding is reached after a complete description is given of all the constituents, variations of perceptions, thoughts, feelings, shapes colours and sounds (captured through the data tools of significant statements, quotes and transcendental-phenomenological reduction) of indiscriminate waste disposal by both interviewees and interviewer through an exercise called horizontalisation.

Household solid waste (HHSW)

HHSW (also referred to as domestic waste or residential sector waste) are waste types that originate from residential/domestic activities such as cooking, gardening, clothing or entertainment, with e-waste as a newly-emerged phenomenon. In the context of Uroora, food remnants such as cassava/yam/plantain peels, worn out clothing, and other disposables such as packaging from small-scale and home-based businesses constitute specific examples (Ogu, 2000). Waste in this category would usually exclude large-scale commercial refuse from business activities such as restaurants, markets, and shops, or industrial processes. The waste management aspect refers to the collection, storing, transfer, and disposal by the municipality as well as efforts (such as reduction, reuse, recycling, energy recovery, and disposal) to mitigate related environmental impacts of such waste (Khatib, 2011).

Imaginative variation

Through imaginative variation, the study attempts to discover how the experience of the indiscriminate solid waste disposal has come to be what it is (Moustakas 1994). This includes numerous possibilities, which are connected to the essences and meanings of indiscriminate solid waste disposal. Such factors included belief systems, a population explosion occasioned by rapid urbanisation, which resulted in the collapse of waste management services that never envisaged the unprecedented increment in human activities.

Neurophenomenology

Neuro-phenomenology refers to the understanding of perception and human experience based on the multi-disciplinary approach between phenomenology (philosophy) and neuroscience (human biology). The key objective of studies in this field is the pursuit of a better understanding of human behaviour, and the most appropriate approaches for changing/influencing the related behaviour. Through this engagement, a multidisciplinary field of biological sciences and humanities has been forged and developed with practical insights into human subjectivity and consciousness as the key goals (see for example Varela, 1999; Olivares *et al.*, 2015). For this study, neurophenomenologic principles from existing studies were taken 'as-is' for application within an empirical case study context.

Othering

This term refers to the process whereby a majority within a social-cultural/political setting construct a shared 'us-them' representation of another group based on categories such as class, gender or race. For example, in the context of this study, everyday generalisations about a cultural group such as cattle herders of northern extraction who pollute the environment and destroy farm crops, are a common experience within Uroora. However, the term is specifically applied in the study to assist in the exploration of roles/duties relating to waste handling/management

Phenomenology

Phenomenology is a field of philosophy concerned with the understanding of the experiential and existential dimension of our mental/embodied life without objectively invoking the underlying biological genesis or natural explanations of consciousness (Varela, 1999). It is a unique type of reflection about our capacity of being conscious of ourselves, especially about what we sense and perceive without intervening/prior mediating explanatory frameworks.

Place attachment (PA)

Based on a phenomenological perspective, PA refers to the bonding shared between people and their respective places of regular habitation, as well as the value they

accord to such places. Key variables/drivers of PA are place dependence, place identity, place affect and place social bonding (Ramkissoon, Weiler, and Smith, 2014). However, existential phenomenology construes people, place and experience as a holistic and inseparable phenomenon, which entails an understanding of people as dialogically immersed in their habits as guided by their worldview. The initial phenomenological approaches to PA studies significantly boosted insights from neuroscience, which have facilitated a better understanding of the direct/first person, thus enabling the emergence of neuro-phenomenology.

Pro-environmental behaviour (PEB)

PEB refers to the actions/behaviour of individuals, households, or communities if/when such a behaviour portrays a systematic understanding of the inter-dependencies between human beings and their natural environments, which in turn ensures the sustainable co-existence of such interactions over the long term, especially across generations (Larson *et al.*, 2015; Ramkissoon, Smith and Weiler, 2013). Such behaviour can be characterised by the mitigation of environmental harm through over-exploitation, pollution, or other forms of degradation as well as direct interventions for environmental regeneration, and healing (conscious choice to direct economic resources to such goals).

Rituals

A primary purpose of ritual is to emotionally embed on its participants synchronous behaviours, which align with the collective group consciousness in pursuit of coherence, and harmony in the social functioning of the cooperative. Anthropologically, rituals have socially orchestrated programmes of actions with intentional symbolic meanings undertaken for a particular socio-cultural goal of coherence, and identity (Fischer *et al.*, 2013). Examples of popularly known/understood rituals include initiation rites (also known as rites of passage), and as such is carried over from adolescence to adulthood, marriage, and even at death.

Structural themes

In the context of the study, structural themes refer to *neosis*, which pertains to the act of feeling, thinking, perceiving and remembering during the time of the day, or the periods of the year's wet and dry seasons, in terms of space, and of what material (how they appear in the residents' consciousness). In this context, for example, the residents expect an increased degradation of their environment and an avalanche of mosquitoes during the wet season, as well as the increased inaccessibility of roads.

Textural description

Textural description pertains to *noema*, which is the object as given, whether small or large. In relation to the study, the appearance of solid waste in an unexpected location (it could be large or small; how it appears physically). Here, reference is made to the textural dimensions of the solid waste.

1.3.9. Structure and Outline of the Thesis

Based on the overall study objective, and the related sub-questions, this study is structured in seven Chapters, outlined in this section.

The first chapter presents a motivation for and background to the study, followed by a statement of the research problem, objectives, questions, sub-questions, the assumptions, delimitation of study, and the definition of key terms used in the study.

Chapter 2 presents an appraisal of literature in the key theoretical fields anchoring the study. These include place attachment from anthropological, and psychological perspectives, phenomenology and neurophenomenology, as well as rituals, HHWM, PEB, and environmental psychology. Insights from the study reviewed are then applied to guide the theoretical framework of the study.

Chapter 3 presents the application of ethnographic-based observation and phenomenological/neuro-phenomenological approaches in the case study, and their application in data collection, analysis and findings. In doing so, the study made use of observations to update plans/maps, and recorded an initial survey of waste management facilities and bio-social information from 30 purposefully sampled residents based on their religious and socio-economic attributes. Semi-structured in-

depth interviews (SSDIs) of five purposefully selected interviewees, and five carefully observed/shadowed households (as per the criteria listed in Section 3.2 of Chapter 3) were undertaken. This task was carried out with the use of the second-person methods of data collection, as explained in Section 3.3.4. The data tools were field notes, observation, maps and voice/video recordings, and transcripts of the phenomenon of interest, which are indiscriminate waste disposal at various locations, ritual practices, as well as the co-existence of the contradictory/conforming attributes.

Chapter 4 presents the existing situation of the contradiction or conforming attributes among residents, and their physical environment which in turn contributes to indiscriminate waste disposal, and the attendant consequences. Given the current situation (which includes the detailed description of current, and existing family and community rituals) the significance of rituals in enhancing bonding, and a sense of belonging, is analysed and sub-findings captured in this chapter. Other features include the individual and collective awareness of the 'waste condition' and its effects on belonging, and through perspectives of phenomenology and neurophenomenology in PA. It considers issues that were object-directed (intentionality) and action-oriented perception in the life-world situation of the residents. The chapter also addresses the role(s) of rituals, religion (of the three major religions, which are African traditional religion, Christianity, and Islam) and conventions. The chapter then examines the connections, and relationships of these factors. Data tools for the study include maps, photographs, physical observation, field notes, and interview guides/focus group discussions, as summarised in Appendices 1-7.

Chapter 5 addresses the PEB research sub-questions and the sub-findings arising from Chapter 4 on whether the residents may have been experiencing an apparent contradiction/conformity between PA and PEB. By applying the principles of phenomenology in the mediation of rituals and related practices, the study was able to establish the connection and interrelationships through the lived experience and consciousness of the participants, as can be seen in Appendix 6. It captures the sub-findings along key themes such as the processing of attributes concerning rituals, PA and HHSWM, the indiscriminate waste disposal evident in the settlement, the composition of waste, the effect of the waste condition on public health, and infrastructure. The sub-findings include that non-indigenes residents outnumbered the

indigenes with 1:5 ratio, therefore leading to the weakness of PEB principles. Others include the flooding of the settlement during the wet season, lack of provision for waste management services, and the disregard of the sanctity of nature as was revealed through the animistic belief of the African traditional belief system, and supported by Christianity and Islam as the two other major religions of Urora residents.

Chapter 6 addresses the contradictory/conforming research sub-questions and the sub-findings that the application of the principles of phenomenology, rituals, and related practices can contribute to the understanding households' PA and HHSWM practices, using the ISWM wasteaware as a benchmark for assessing the conditions within the case-study. Given the fact that the people are hyper-religious, as they value issues that have religious connotations, it becomes a medium which was referred to on a continuous basis. The study finds that the belief system/cosmovision does not harbour drivers that facilitate this contradictory/conforming condition, but that the drivers were unconsciously driven by the mental standpoint of the participants, as the effects of urbanisation and the population explosion have affected the mindset, and behaviour of the residents. The residents seemed to lack awareness/knowledge of the overall effect of indiscriminate waste disposal, and even of the emerging economic value of waste.

Chapter 7 presents the overlapping arguments or claims for understanding the relationship in PA and PEB as a strategy towards re-conceptualising a better understanding of HHSWM. This was achieved through the consolidation of findings in PA (that the residents are quite religious, as rituals mediate the family and community activities such as feasts, festivals, celebrations and ceremonies). This is followed by the consolidation of findings in PEB in waste activities, with the neglect of numerous PEB-guided waste management practices such as source separation, reduce, reuse and composting in the settlement, the prevailing condition is that of open-air burning, shallow burial, compound waste dumping, and dumping in open public places.

The Chapter, therefore, argues that the potential abounds for converting waste to wealth through the use of the appropriate technologies, but communities/individuals lack the necessary awareness, knowledge, or capacity for such ventures. The chapter finally consolidates the advantages and benefits of using ethnographical observation

when guided by the principles and techniques of neurophenomenology, which are enormous especially for creating a better understanding of the contradictory or conforming conditions existing between PA and PEB.

The last part of the thesis presents the appendices (1-9). This section summarises the research methodology with the research sub-questions as a guide (PA, PEB/waste, contradictory and conforming concerns). With the assistance of a local community liaison facilitator, some key informants who are knowledgeable about the happenings in the settlement were identified and interviewed (see details in Appendix 1 and process in Chapter 3 and transcripts in Chapters 4, 5 and 6). Also engaged were focus group discussions and the phenomenological-guided interviews of heads of households (see Appendices 5, 6 and Chapters 5 and 6). The appendices section also gives GPS readings of PA features (see Appendix 3) as well as data analysis template and the anatomical functions of the human brain (see Appendix 8) which if included in the main body would disrupt the flow of ideas and jeopardise the main essence of the study.

CHAPTER TWO

LITERATURE APPRAISAL

2.1 INTRODUCTION-OVERVIEW OF THE THEORETICAL FIELDS

As stated earlier, the theoretical underpinnings that inform the study emerge from phenomenology and neuro-phenomenology, as mediated by insights from neuroscience as a multi-disciplinary field across biological sciences. For centuries, the residents of Urora have lived with a set of values that guide their lives, intentions, feelings, and purpose, such that human beings and their physical environment interact dynamically (Dmochowski 1990; Ogbonmwan 2007; Iyare 2009). Besides the traditional cosmovision and value system, what is relatively new to this locality, however, is the intensification of the degradation of the environment by the present residents whose orientations, mindsets and practices seem to suggest anti-environmental attitudes/values. This chapter, therefore, aims to appraise studies on the relationships and dimensions of rituals and related practices of PA and lifestyles, improved HHSWM, environmental psychology, HHSWM, and environmental behaviour. The theoretical fields guiding the literature appraisal are shown in Figure 2.1.

2.1.1 Tragedy of the commons

One of the theoretical underpinnings that guided this study is Hardin's model of the "*Tragedy of the Commons*" as conceptualised by Garrett Hardin (see Ostrom, 2008:2, 3). This model states that the degradation of the environment (common pool resource), manifests when each person who contributes nothing to its sustenance (free-riding) is motivated to maximise the use of the resource, to the detriment of others. This model of free-ride is ingrained in the present study as some resident participants were non-committal to belonging to the settlement when they made statements like; why should I care is it s/he made the place filthy? Why other resident-participants made allusions to the fact that "they have their birthplace in the village and why should they waste time and money to tidy the place? Given these statements, the individual cannot be left to decide on how best to use the resource (environment), and in this way to avoid over-exploitation regulation, therefore, is introduced so that the motivation to free-ride would

be mitigated. This idea of free-riding is in agreement with the handicap principle/costly signalling initially proposed by biologists Zahavi and Zahavi (1975) to explain how evolution may lead to honest or reliable signalling between animals that have clear motivation to deceive one another.

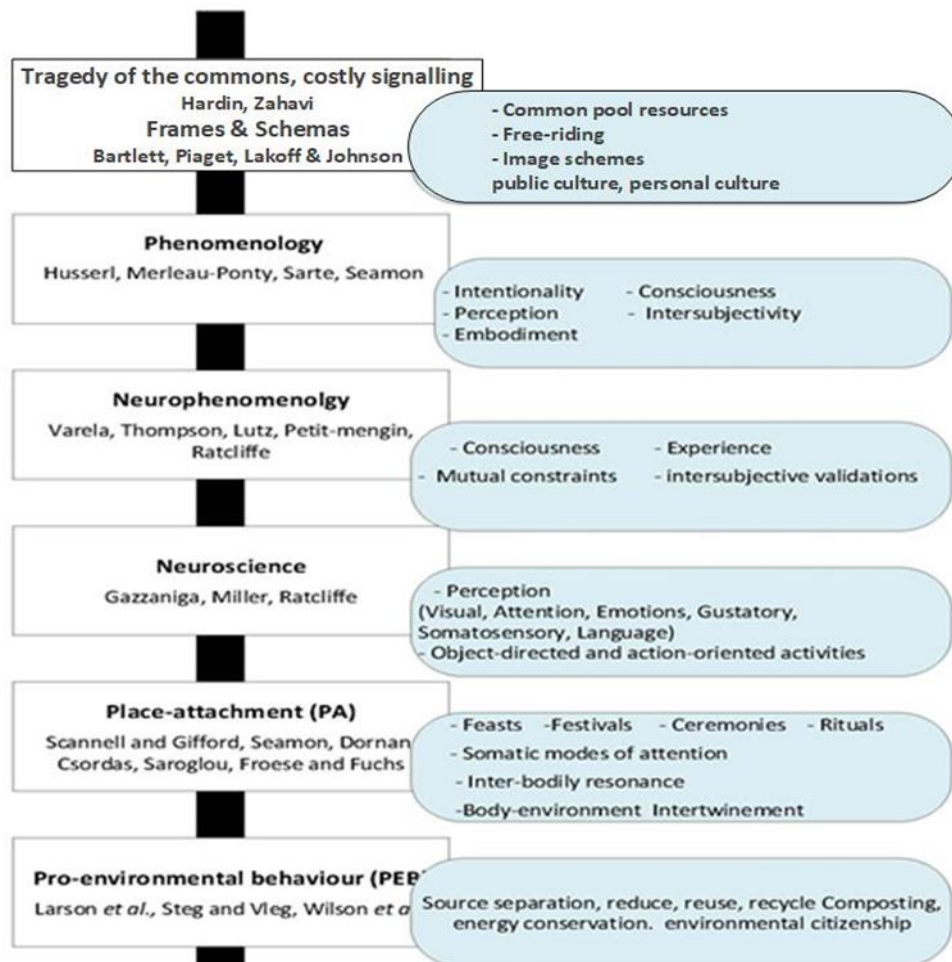


Figure 2.1: Theoretical fields at a glance

The handicap principle/logic is extended to various aspects of human behaviour, such as cooperation, and commitment. Various studies have argued that ritual practices increase participation by providing an advertising system that communicates the intensity of members' faith, and thus solidarity within the group (Alcorta and Sosis,

2005). Since group activities are vulnerable to free-riding, commitment can take place only if such activities are accompanied by 'credible signals of cooperative intentions that are costly to fake' (Alcorta and Sosis, 2005:93). In this regard, experience in life matters, such as 'likes' and 'dislikes' are not easy to fake, to the extent that one's body-language and facial expression will reveal otherwise.

2.1.2 Schemas and Frames

One of the core theoretical fields anchoring this study which has received the attention of scholars, especially in the fields of cognitive science, linguistic, cultural sociology and cognitive psychology is schemas and frames. The concept of schema theory was first introduced by psychologists Frederic Bartlett (1932) and Jean Piaget (1952). Image schemas emerge in the 1980s out of the collaborative work of philosopher Mark Johnson and cognitive linguist George Lakoff (Lakoff and Johnson, 1980). Image schemas refers to the most redundant aspects of perceptual and bodily interaction with a material or spatial world.

Conceptually, schemas are nondeclarative form of personal culture, whereas frames are a form of public culture which activates schemas. Furthermore, Wood *et al.*, (2018) posit schemas as personal culture that entrenched (multimodal tactile, aura visual, olfactory) neural assumption developed through repeated embodied experience and stored in long-term memory. Frames refer to a shared definition of the situation that comes out of real social interaction – a general meaning context in which social actors make an impression/make sense on an action as exemplified with the following words. "A particular experiential gesta: (a) a structure within a person's experience that identifies that experience as being of a certain kind; or (b) a structure in terms of which a person understands some external occurrence and that identifies that occurrence.." (Lakoff and Johnson, 1980 p. 205)

In pursuing this concept, attention is drawn to studies that have to do with subgroups and the community in the areas of intersection of culture, cognition and environment (Cerulo, 2014; Lakoff, 2010). Accordingly, Lakoff (2010) posit that frame is a useful explanatory tool for researching the concrete, especially why people if presented with facts, will not reason to the right conclusion. His explanation to this "anomaly" is that unless the facts make sense in terms of their system frames wrong notions will becloud

their sense of reasoning. The key principle to effective communication is to frame the fact appropriately. Inherent in this concept is a constant effort to build up the background frames needed to understand the crises while at the same time building up neural circuitry to hinder wrong frames inherent in peoples minds.

The relevance of frames and schemas to the study of PA, PEB and HHSWM is one that conceptualises/integrates human and the environment into a comprehensive whole. This inseparability is opposed to the current world view that emphasises the ontological and epistemological dualism (such as mind/body, subject/object, cognitive/emotional and knowledge/imagination) to every facet of the society. Frames evoke the combination/integration of environment (solid waste management) with socio-economic activities (customs, beliefs, attitudes align with businesses, trading, renting/letting) at the community level. Wood *et al.*, (2018) observe that certain cultures understand the abstract concepts of morality and power when it is communicated vertically by associating UP with moral goodness and power and DOWN with immorality and weakness. With the knowledge of schemas, the specific content of source separation, reduce, reuse, recycle and compositing is learned, shared and distributed among persons/households and retained in their memory through repeated embodied experience (from waste to wealth). This logic is a clear departure from the present anti-environmental behaviour that manifests in open-air burning, shallow burial, indiscriminate disposal in public open spaces and compound waste dumps.

2.1.3 Phenomenology-neuroscience

As a result of the growing interest in the potential for inter-disciplinary exchange between phenomenology and affective and cognitive neuroscience, there is an emerging expectation that specific phenomenological descriptions can be abstracted from their philosophical context and be subjected to scientific research (see, for example, Ratcliffe in Dreyfus and Wrathall 2006). In this regard, therefore, neurophenomenology is concerned with how neuroscientific findings can provide support for phenomenological descriptions, and, conversely, how phenomenological descriptions and neuro-physiological findings can complement each other. This relationship is in tandem with Varela's idea of reciprocal constraints, where dynamic

systems theory should mediate between phenomenology and neuroscience (Thompson, 2010) in a manner that naturalises the process. In other words, description and understanding of experience within phenomenology can be better understood by integrating it into a scientifically described world of neuro-biological processes.

The crucial question/debate in contemporary research is if phenomenology should surrender to naturalism, or if it can in some way forget it. In answering this question, most scholars and researchers (Lohmar, 2006; Gallese 2001) prefer the guidance by Ratcliffe (in Dreyfus and Wrathall 2006) which opined that although Husserl's overall phenomenology is resolutely anti-naturalist, "it is possible to extract some of his numerous phenomenological insights from their philosophical context and put them to good use in a naturalistic cognitive sense" (Ratcliffe 2006, p.331). Therefore, the relationship between phenomenology and science is not a matter of one being put to work to serve the other. Informed by this understanding, Ratcliffe (2006) concluded that "it is an ongoing process of mutual reinterpretation, which is not legitimately constrained by inflexible metaphysical and epistemological assumptions about the nature of science that are imposed in advance of empirical inquiry" (*ibid.* p.332).

To bring this line of thought to fruition, Ratcliffe (2006) made use of mirror neurons which are believed to be present in both monkeys (as demonstrated by using electrophysiological studies), and in humans. Studies conducted using magnetoencephalography (MEG), trans-cranial magnetic stimulation (TMS), and positron emission tomography (PET) to record individual neurons in humans, have been conducted to explore the interplay between phenomenology and neuro-science. Through these neuro-imaging tools, Ratcliffe (2006) discovered that some brain cells (neurons) adjust to actions such as tearing, manipulating, grasping, holding objects, as others are receptive to the manner in which objects are viewed. Added to these properties, Ratcliffe (2006) discovered that mirror neurons discharge when the observation of certain kinds of actions takes place in a manner that matches observed actions by others with actions performed by itself. In this context, the behaviour is perceived as goal-directed and with a purpose. Mirror neurons, therefore, offer possible explanations for how action perception can be perception, and nothing else.

For this reason, mirror neurons can, therefore, be assumed to act as a bridge between the sensory and motor modalities of perception.

Neuroscientists argue that the functioning of mirror neurons shed light on current debates between “theory” and “simulation” theories of interpersonal understanding, as both positions assumed the role of assigning intentional states to other agents with the sole intention to predict, interpret and explain (Ratcliffe 2006 , Fuster 2013, Bear, Connors and Paradiso 2007). The supposed awareness (cognition) of others as others consists of reflexive couplings of self and other at the level of the lived body. It is, therefore, an understanding that mirror neurons (which act as a bridge between sensory and motor modalities) can help to illuminate. Ratcliffe made use of the terms perception and proprioception: the ability to imitate possibly has its source within the indirect mapping between the two concepts. The understanding between them can, therefore, be explained through mirror neurons which can bridge perception and action.

2.1.4 Neurophenomenology

Neurophenomenology is the weaving together of the two types of analysis, the phenomenological and neurobiological, to bridge the subjective experience, and biology. Despite its laudable goal, researchers are of the view that neurophenomenology has met with practical difficulties, which have limited its implementation in actual research reports (Petitmengin and Lachaux, 2013). The main reason for this impracticability is the emphasis which neurophenomenology places on the microdynamics of experience at the level of brief mental events with specific content. However, most neural measures have much larger functional selectivity, because they mix functionally different neural processes, either in space or in time.

Given the identified drawback, Petitmengin and Lachaux (2013) proposed the use of simple cognitive operations, with the hope of laying a foundation for micro-cognitive science at the level of the perception-action cycle, and precise measurements of their micro-dynamics. By doing so, neurophenomenology will combine the systematic study of neural and experiential events through the systematic study of human cognition at a higher level of understanding.

Specific concepts essential to the understanding of this research study are live experience, consciousness, and related concepts like intentionality, and embodiment. Lived experience is regarded as lived, and verbally articulated in the first-person as seen in the experiences presented in Figure 2.2. Also in Figure 2.2, the different types of consciousness are briefly presented.

In sum, therefore, the understanding of neurophenomenology is that all living experiences have an underlying physiological structure of neural relationships. And neuroscientific study conceptualises and gives details of the experiences and consciousness in a comprehensive and embodied manner.

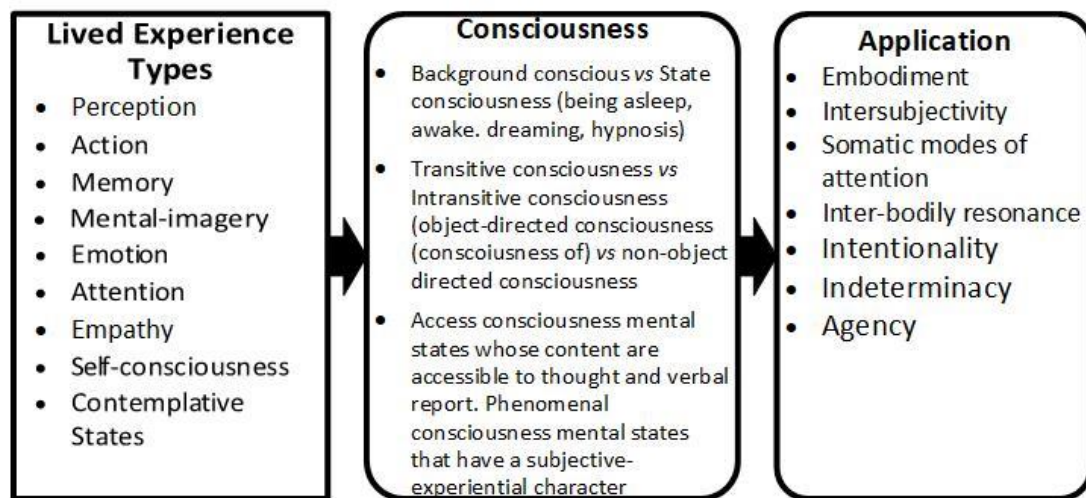


Figure 2.2: Types of lived experiences, consciousness and their relevance

Sources: Adapted from Lutz and Thompson (2003, pp.32, 34,35), Ratcliffe in (Dreyfus and Wrathall 2006), Damasio (2010) Thompson (2010), Hammond, Howarth and Keat (1991), Dornan (2004).

First-person *versus* third-person and second-person perspectives

A central issue in the methodology of phenomenology is first-person *versus* third-person perspectives. The relationship between the two concepts has been widely investigated, mainly by researchers influenced by Varela's notion of neurophenomenology (Varela 1999), which emphasises the training of experimental subjects to develop their report, and analysing such reports in the form of categories (Lutz *et al.*, 2002). The neo-Varelan researchers are of the view that

phenomenologists must use the first-person account (interpretative-qualitative) in their intention to close the 'critical gap' about solving the 'hard problem.'

In the quantitative experimental technique, researchers naturally distinguish between investigators and subjects, and thus favour the use of the third-person account, and occasionally also by phenomenologists where the specifics of individual experience need to be averaged out (Roth, 2004). In this regard, the author is of the opinion that the research questions should drive the methodology, and not the other way round of being pre-occupied with whether to use first-person methods or third-person methods.

One of the goals of neurophenomenology is to study the integration of the lived experiential data with neuroscientific data. To this end, the recent evidence favours the use of the second-person account of methodology (Olivaires *et al.*, 2015; Petitmengin, 2006). With the use of interview techniques to solicit both verbal and non-verbal information from participants, the second-person method refers to an approach involving a trained interviewer with a responsive 'attitude' capable of assisting the interviewees in reporting their lived experiences accurately. In line with this thought and considering the time, energy and logistical reasons for embarking on the training of the respondents, this method affords the study a reliable way for gathering the required data.

Related to methodology, is the "frontloaded phenomenology" which involves using formal phenomenological insights such as the types found in the works of Maurice Merleau-Ponty, and Edmund Husserl as the basis for experimental design. It derives its name from the fact that some brain areas (frontal) are activated when a participant engages in an intentional action or consciously stimulates/imagines performing such an action. Every human being possesses an existential contingency, and for this reason, s\he is aware of the capricious environment s\he lives in and with this fact they tend to adapt and gain control over it. The development of higher cortical functions allows human beings to solve abstract problems, an adaptive mechanism in any environment. Given the nature of the study, and with the literature available, Varela's approach of phenomenology and neuro-phenomenology has some attractive features that give insight into how a multi-faceted problem can be resolved, at least with some of the reasons below.

Concerning the study, waste management in developing countries has been a multi-faceted problem because it has defied measures aimed at resolving it. Approaches before now may not have gained much traction, most likely because the philosophy underpinning the methods prescribed do not take into account the lived experiences of the actors, thus further alienating the people from the programme, thereby failing to play an active role. The issues outlined in the study, require a comprehensive framework to address this problem.

In their study of mobility and dwelling amongst rural elders in South West England and Wales, Todres and Galvin (2012), used phenomenological principles and techniques in the areas for interviews with the elderly, and the analysis of interview transcripts. Their study revealed that the transport and mobility needs of older people living in rural areas could not be meaningfully understood without understanding their well-being. Also to be understood are the kinds of movement that constituted well-being, and how this is related to the phenomenon of “dwelling,” which included their feeling of “at-homeness” in their rural environment (Todres and Galvin 2012, p.57). Also, researchers have argued that inter-relationships exist between spirituality, nature, and the human being. With this in mind, the application of phenomenology by way of complementarity and synergies with other relevant disciplines such as neuroscience, have resulted in outstanding outcomes for a better understanding of human-environment relationships (Petitmengin, 2007:64).

Another strand of importance to the present study is the sacred site experience of Mount Athos in Greece. Andriotis (2009), whose methodological principles and techniques were similar to Todres and Galvin’s, but on a different subject-exclusive male sacred shrine. Given the peculiar circumstance of interviewing/initiating conversations with the visitors and reviewing narratives kept in monasteries, the researcher was able to identify five core elements of authentic experience. It took the form of spiritual, cultural, educational, environmental, and secular experiences.

The application of the principles of phenomenology and neurophenomenology, as mediated by insights from neuroscience in the study, facilitated the proper use of perception, attention, memory, emotion, somatosensory, and language. This

approach gained currency when expressed in the form of cooperation, identity and belonging to the overall interest, and benefits of the study.

2.1.5. Neuroscience

The nervous system (the brain, spinal cord and nerves of the body) is crucial for life, and enables us to sense, move and think (Fuster, 2013). The aim of neuroscience, therefore, is to have a comprehensive understanding of the mind with the nature of the internal events that underlie imagery, experience, as well as considering the quality of experience of subjects as they interact with environments (for details about the functions of the human brain, see Appendix 8).

The view of embodied mind assumes that the human mind is constituted of the dynamic interactions of brain-body, and its environment (Merleau-Ponty, 1962; Valera, 1991). Thompson (2010) proposes that enactive neuroscience views the brain-body system as inseparably embedded in the world (the body in active engagement with its world).

Bear *et al.* (2007) claim that in the late 1970s, Michael Gazzaniga (a neuroscientist) and George Miller (a cognitive psychologist) coined the concept of cognitive neuroscience. The ongoing development of this field of knowledge has changed the way we understand, and especially how we assess the relationship between behaviour, mind and brain (Ochsner and Kosslyn, 2014). As the field of cognitive science grows, and supersedes behaviourism in psychology, researchers in numerous fields have now come to understand that a causal/conscious relationship exists between mind, behaviour and brain (Fuster 2013; Ochsner and Kosslyn, 2014).

Cognitive neuroscience: Cognitive neuroscience focuses on individual knowledge, imagination, memories, and everything we have learnt from birth, as most of these activities take place in one's cerebral store of experiences (primarily the cerebral cortex). Also, the discipline deals with the systems by which the brain recalls, stores and acquires knowledge as we interact with other people and our environment (Fuster 2013). This interdisciplinary field combines neuroscience with psychological studies of mood, personality and emotion. However, there exists an overlapping neural and mental mechanism which makes the distinction between cognition and affective

domains to become more fluid, such that we now have diverse sub-fields such as the cognitive neuroscience of emotions.

For this study, the research is limited to the domains of perception, attention, memory, emotions, somatosensory and language, as they inform the specific areas of the fieldwork, analysis and interpretation. The researcher at this stage considers language and another concept (inter-bodily resonance) which embeds the domains earlier mentioned.

Language: Language in whatever form, whether written or spoken, is a creative function of the brain. It is common knowledge that in humans the most important, most complex, and most versatile function is language (Fuster 2013). Our prefrontal cortex plans, predicts and creates meanings, among others, as language happens to be reactive, repetitive and instinct-driven. The prefrontal cortex contains cognitive representations of the most complex sequences of goal-directed action, and equally participates in their expression. The Broca and Wernicke's regions of the brain are centres for involvement in speech production, and speech meaning (see Appendix 9 for details). Creative language expands alternatives for the choice of information, and for the course of action that would lead to valuable outcomes.

Through the creative effects of language, in every facet of life, humans have been creating and modifying classes and status, like people who through their voices or forces perceive themselves as normative, have represented those who do not behave in a similar fashion as primitive, anomalous and inferior. By so doing these persons see themselves as the standard – as the norm — while the second group is referred to as the 'other'.

The aspect of language is considered at this stage because of its relevance in communication, especially when environmental degradation in the settlement has conditioned the mode of expression. However, this same language spoken by the indigenous residents, which initially abhors all forms of degradation, now accommodates it. Added to this fact, is that perception and memory are inexorably related to the language of expression in any settlement, as the brain is informed through the various cortices, it tends to mimic or copy what it processes.

Common to these explanations framed with regard to propositional attitudes such as perception, attention, and emotion is the cognitivist assumption that the mind is hidden in the head. In other words, in the Cartesian concept of the pre-eminence of mind, a body is understood to be “inert, passive, and static” (Csordas, 1993). The Cartesian idea is no longer fashionable, and gave rise to neuroscience and the accompanying lenses of phenomenology, and neurophenomenology. Through the lenses of phenomenology and neurophenomenology, the idea of the role of the embodiment has taken centre stage in social understanding. For this reason, it is popular to discuss the phenomenology of the extended body within the ambit of perception (Froese and Fuchs, 2012). Within this discourse, however, a concept of inter-bodily resonance comes to mind (Froese and Fuchs, 2012).

Inter-bodily resonance: Resident ‘A’ could be angry as a result of the stench from the decomposing refuse in the vicinity, which is portrayed through his/her typical bodily changes as seen in facial, gestural, circulatory and introceptive expressions. His/her prereflective, experienced ‘lived’ body functions as a ‘resonance board’ for the emotions as the countenance /tension on the face. Further, the sharpness of the voice (intra-bodily resonance) becomes audible, and is perceived by resident ‘B’, the neighbour/partner. The effect of this impression will trigger complimentary bodily feelings in the partner. These bodily movements/feelings might induce an unpleasant tension in the partner. Thus resident ‘B’ sees the anger welling up in resident A’s face but also senses it with his/her own body through his/her own intra-bodily resonance as the impression created in the partner becomes an expression for his/her inter-bodily resonance, as illustrated in Figure 2.5.

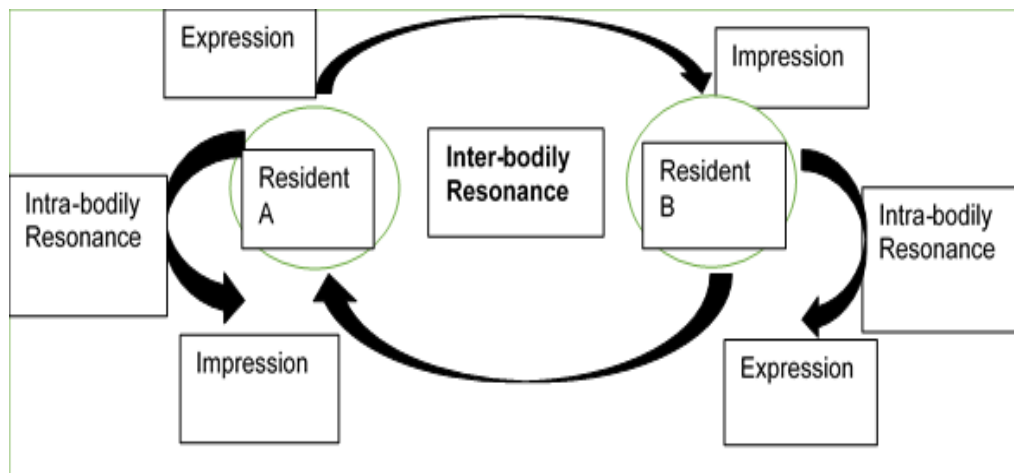


Figure 2.3: An Illustration of the extended body
Source: Adapted from Froese and Fuchs 2012, p. 212

Three key facts are apparent in the extended body hypothesis; first, there exists a minimum of two embodied agents (residents A and B) living in an environment, where each has a capacity for producing expressions, and receiving impressions. Second, the body of each agent is invested with distinguishable parts which can impact, and influence residents A and Bs' activities – a necessary condition for intra-bodily resonance.

Moreover, thirdly the resident agents must be able to conduct, and coordinate their affairs to produce a recursive interactive process. A more related concept that tends to combine these dimensions is embodiment. An embodiment is an indeterminate methodological field defined by perceptual experience, and the mode of presence and engagement in the world, since the concepts of perception, attention, emotions, and language (considered earlier) are complementary and not mutually exclusive standpoints.

Indeterminacy as a theoretical ground is used to collapse the dualities of exclusive standpoints like subject and object, self and other, mind and body, as the use of mutually exclusive standpoints lead to imprecise understandings of human practices (Csordas 1993). To correct this error, Csordas argues that it is through the embodied engagement in the world, through our cultural engagement that encourages the shifting of our somatic modes of attention to specific aspects of our bodies, that the

relationship between my disposition to pollution and the more cognitive function of this act/behaviour can be explored.

2.2. RITUALS, RELATED PRACTICES AND CULTURAL NEURO-PHENOMENOLOGY

One of the core theoretical fields of this study is rituals that are commonly used to reinforce communal ties, social bonds, intra-group cohesiveness, commitment, and cooperation. As a result, rituals have attracted attention from various disciplines, such as anthropology, psychology, sociology, and neuroscience. However, while making use of findings from these fields of knowledge, the study focus was centred on the community, ethnic associations, festivals/religious programmes, and activities with the expectation of gaining a multi-disciplinary framework/approach for the study.

Anthropological and psychological evidence seems to have reached a consensus about the powerful effects of rituals (Bell, 1992; Fischer *et al.*, 2013; Altran, Axelrod and Davis, 2007). While anthropologists are of the opinion that rituals orchestrate activities, body motions, and sacred values to support pro-sociality, psychologists argue that sacred values are linked to decision making, and that sincere respect for sacred values reduces moral bankruptcy (Fischer *et al.*, 2013; Altran, Axelrod and Davis 2007). The people of Wellington, New Zealand respect and cherish sacred values (as anchored through rituals), which motivate them to come to worship, and it is during worship with music and dancing where ‘muscular bonding’/physical synchrony takes place, which adds value and ‘appears to’ solidify ties among the worshippers (Fischer *et al.*, 2013; Wiltermuth and Heath, 2009).

Fischer *et al.*, (2013) posit that if this act of worship coupled with music is continuous, it produces positive emotions that weaken the boundary between the self and the group, thus leading to a feeling of collective effervescence that enables the group to remain cohesive. Guided by insights from available studies, a group that evolves synchronous rituals is better able to tackle everyday challenges, and tasks collectively than those without (Bell, 1992; Wiltermuth and Heath, 2009; Fischer *et al.*, 2013). In their field study of 113 participants from nine different communities in Wellington, New Zealand, Fischer concludes: “acting for sacred values, collectively, provides a record

of cooperative action and thus offers evidence of cooperative responses downstream” (Fischer, *et al.* 2013:122).

In a more comprehensive manner that covers dimensions of religious beliefs and individual religiosity, Saroglou, (2011) argues that four factors are partially distinct, although interconnected: believing, bonding, behaving and belonging (Table 2.1). These factors are essential to the present study because they reflect distinct psychological processes of cognition, emotion, moral and social aspects germane to PA dimensions. The hyper-religious state of the residents, the participants’ beliefs, emotions, rituals and moral rules are intertwined, interwoven, and coalesce to form a close-knit community.

From Table 2.1, the domains are not stand alone entities there exists combination and integration, for example, religious forms/expressions resulting from the combination of two dimensions that result in spirituality when believing is integrated with bonding to moral communities, and when behaving is tied to belonging. Fundamentally, religion serves two principal functions, which are self-maintenance and self-transcendence. The two functions are closely linked to human adaptability and survival, as they are ingrained in the human gene pool (d’Aquili and Newberg, 1998, Alcorta and Sosis, 2005). The knowledge of the existence of these dimensions in the settlement provided the study with possible areas to explore for a comprehensive PA, PEB/waste outlook.

One aspect of ritual which has received attention from scholars and, therefore, is relevant to the present study, is cultural phenomenology and neurophenomenology (Csordas, 1999; Dornan, 2004). While making use of the phenomenology of Merleau-Ponty and the theory-practice of Bourdieu, Csordas (1999) explores the various ways in which embodiment serves the existential ground of culture, and makes a distinction between body and embodiment, among other concepts. The body is a biological/material entity; embodiment is the indeterminate methodological, defined Csordas (1999) by perceptual experience, mode of expression and relationship in the world. Within the realm of cultural phenomenology, Csordas’s (1993) somatic modes of attention provide a way to re-conceptualise an individual’s attention by ‘with’ and ‘to’, not as an isolated object.

Table 2.1: An Integrative model of the major aspects and dimensions of religion

Source: Saroglou (2011) p.1325

Dimensions	Aspects	Products	Goals	Transcendence^a	Isolation's Consequences	Risk	Health - Related Processes	Dynamics of Variation^b
Bonding	Emotions	Rituals	Awe	Experiential	Mysticism	Neurotic R	Emotion. Wellbeing L	Negative versus positive
Belonging	Identity	Groups	Totality	Social	Relation as Identity	Prejudice	Social enhancement	Exclusive versus Inclusive
Believing	Beliefs	Dogma	Truth	Intellectual	Intellectualism	Dogmatism	Meaning	Literal versus symbolic
Behaving	Morality	Norms	Virtue	Moral	Moralization	Rigorism	Self-control	Self- versus other-focused

a. Also motives for conversion: b. Cultural and religious variation

Neuro-theologic studies suggest that experiences of God and communion with higher/superhuman beings entail sensory-somatic processes that are neurologically integrated/mediated as everyday religious experiences, which cause distinct shifts in brain activity (d'Aquili and Newberg 1998).

Studies indicate that under such experiences neural-subsystems that distinguish 'self' from 'other' remains immobile/quiet, leading to further the common experience of becoming one with the universe, and gradually develops into 'experiencing God', and communing with the sacred. A repetition of the contributing activity over time tends to discipline the subject to construe events with radically different meanings. One such construal is for s/he to see events in sequence (Boyer and Lienard, 2006).

Cultural neurophenomenology explores the neuroscience foundations of the articulation of relationships between meaning, experience, consciousness, embodiment, and culture. Ritual and shared religious practices are fundamental mechanisms through which belief and prior knowledge inform meaning for facilitating the sense-making of a given perception/experience (Dornan, 2004, Bell, 1992).

The concept in cultural neurophenomenology, which is akin to cosmovision, is 'cycle of meaning'. This denotes a process through which shared meaning is constructed, and evolves as part of the socio-cultural process. Cultural neurophenomenology mediates/integrates experiences, knowledge, and memory to forge a dynamic process of interaction, and revitalisation. Over time this knowledge process/dynamic maintains a two-way feedback mechanism between the individual and the belief system as it is collectively shared within the community (Dornan, 2004).

In the attempt to actualise meanings, neuroscience researchers argue that the orbitofrontal (OFC) region of the prefrontal cortex is the area of the brain that is activated for processes which entail sacred values, and moral judgement (Damasio, 1998; 2010). OFC also plays a critical role in the following spheres of life; decision making, impulse regulation, life responsibility, morality, the anticipation of rewards and punishment (Damasio, 2010). Arising from these insights, Damasio's somatic-maker

hypothesis articulates the process by which we experientially categorise past experiences, events, symbols, and ideas according to their relationship with ourselves, and especially with associated physiological processes (Damasio, 2010). This implicates the related bodily processes in guiding/influencing future choices, decisions, and actions.

Whereas the five studies appraised in this section appear to complement one another, and their contributions are thus invaluable to this study, the context under which they were conducted is entirely different from the context of this study. The two key differences are cultural and religious backgrounds. The study area is located in a hyper-religious and superstitious socio-cultural environment, where community rituals play a more dominant and respected role in the lives of the inhabitants. In this regard, Mabogunje and Kates (2004) argue that “community rituals of solidarity have become a critical strategy for building up social capital as such activities take place annually and serve to re-create and strengthen a sense of community solidarity and identity” (Mabogunje and Kates, 2004: p.3).

Besides, recreating and strengthening community solidarity ritual, is also powerful not only in shaping the fundamental character, the sentiments that informs the beliefs, dominant assumptions of a group but has the ability to shape, articulate, redefine, legitimise and renew social organisation (Bell, 1990; Prussin, 1999). According to Turner (1973), ritual is efficacious as it is a fusion of powers inherent in the persons, relationships, events, objects and histories represented by symbols; in the process it mobilises energies as well as messages. Given the dominant models employed by social sciences, the embodied/socially embedded person view, the body thus mediates all actions-which includes PA, PEB and HHSWM. Table 2.2 gives a summary of the types of prototype rituals and a brief explanation.

As Ero (2003) argues, the issue of ritual runs deep among the Benins, for whom the living can incur the wrath of the dead if they (the dead) are not given a befitting burial. Related to this belief is the general concern that the off-spring of the deceased, and especially the first son, may not prosper in life if he neglects his responsibilities to the dead ancestors.

Table 2.2: Types of Rituals

Source Adapted and modified from Turner (1973) p.1100 and Bell (1997) pp. 91-135

Type	Components
Contingent rituals	Seasonal, change in climatic cycle, planting, harvesting (calendrical rites)
	Life-crises ceremonies performed at birth, puberty, marriage and death ("life-cycle" rites)
	Rituals of affliction, healing, protection, exorcism (rectify as state of affairs that has been disturbed or disordered)
Divinatory rituals	Ceremonies by political authorities (the village elders, king, state for health, fertility for human beings and crops)
	Initiation into priesthoods or secret societies (rites of exchange and communion)
	Daily offering of food and libations to ancestral spirits or deities or both

On the issue of social capital, it has been observed in cities of some developing countries that women enjoy a substantial degree of economic independence, while also participating in a parallel but complementary governance structure, which organises and regulates their activities (Mabogunje and Kates, 2004).

Other socio-groups are formed along the lines of religion, kinship ties, and social/cultural relations, which rely on interactive forums and community meetings for the important dialogues to strengthen local democracy through participatory decision making (Mabogunje and Kates, 2004; Minn, Srisontisuk, and Laosiriwong, 2010). The work of these scholars also shows that ritual and related practices are central mechanisms through which belief and experience are articulated, integrated, and the resultant meaning expressed (Dornan 2004). Insights from the reviewed studies guide the study to infer that these decisions take place in settlements where the actors either live or work, or public open spaces where they have some liking or affection for leisure

and recreation. They are, therefore, strongly implicated as critical influencing factors in place attachment, as appraised in the subsequent section.

2.3. PLACE ATTACHMENT (PA) AND LIFESTYLES

Studies in PA and lifestyles are primarily located in the fields of social and environmental psychology, as well as in human geography and architecture. From the social psychological perspective, Kyle, Jun and Absher (2014) argue that the concept constitutes three elements, which are cognitive, affective, and conative. These elements have frequently been applied when dealing with societal issues such as child development, job mobility, and family planning, among other notable concerns. From the perspective of environmental psychology, Ramkissoon, Weiler and Smith (2014) and Ramkissoon, Smith, and Weiler (2013) featured concepts such as place dependence, identity affect, and social bonding. The person, process and place (Scannell and Gifford, 2010a) appear to have combined the two concepts, as indicated in Figure 1.1. From these perspectives, it can be argued that place identity is central to understanding the meanings and sentiments people ascribe to places, and their conative actions within their spatial context.

Recent studies in PA have argued that the dualism worldview of psychologists could be based on ontological and epistemological perspectives rooted in positivism about PA, which reinforces the views that PA can be viewed as place dependence, place identity, place affect, and social bonding, among others (Ramkissoon, Weiler and Smith, 2014). Also, the objectivists view place as an independent/separate phenomenon/environment, different to those experiencing the phenomenon, while subjectivists interpret place to entail a personal representation, within the experiencing self, and should, therefore, be understood as holistically cognitive or affective (Kyle, Jun, and Absher, 2014).

These perspectives (objectivist *versus* subjectivist) are contrary to the phenomenological approach as espoused by Seamon (2011), who hypothesised the people-environment relationship based on feelings and affects for the environment by its inhabitants. The people/inhabitants and their environment should, therefore, be understood as a holistic unity (hence the principle of embodiment). Guided by this people-environment construct, existential phenomenologists do not recognise the

dualist concepts of the psychologists. Instead, phenomenologists see human beings as always conjoined, undetachably enmeshed, and immersed in their habitat/place.

Seamon (2011, p.2) states, therefore, that “in other words, a relationship that is assumed conceptually to be two (people/environment) is lived existentially as one (people-environment intertwinement)”. This philosophical thought gave rise to some particular phrases such as body-sight, chiasm, and flesh (from Maurice Merleau-Ponty); *Dasein* or human being-in-the-world (from Heidegger).

This insight has captured the essence of this study, as the views of the residents are where people-place bonding is seen holistically with constituent elements viewed and understood as inseparable. The reasons behind this existential understanding need not be far-fetched as most of the inhabitants share a common ancestry, hence a cosmovision. Another reason is that irrespective of some of the participants' status within their community, they continue to reside in the ancestral home, even though it is evident that the location may not 'befit' the new status they have acquired. It could very likely be that custom and tradition would have played a significant role, especially where tradition demands that the first son inherit his late father's property, though with certain conditions.

In a more detailed version that closely relates to this study, Vaske and Kobrin (2001) used quantitative techniques based on a population size of 182 in the age bracket of 14-17. The participants were engaged in local, natural resource-based work in a 5-7 week programme. The study was aimed at understanding how an attachment to a local resource can influence environmentally responsible behaviour. With the use of the two concepts of place dependence (functional attachment) and place identity (emotional attachment), Vaske and Kobrin used the quantitative equation model of a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Their key finding was that place identity mediated the relationship between dependence and responsible behaviour, while place dependence influenced place identity. With this understanding, the research demonstrated that the person-place relationship as attachment represents an emotional or affective bond between a person and a particular place.

Given the prevailing absence of follow-up studies linking (PA) with other behaviours such as waste management and rituals (especially within a qualitative study perspective), this study provides additional insights into the contributions of PA and lifestyles in the context of bonding, identity and belonging (BIB). From Vaske and Kobrin (2001), it is evident that place dependence represents the useful contribution of place, while place identity contributes to emotional connection needs. These concepts give a clearer understanding of inhabitants in terms of this study concerning the components of PA. However, it runs contrary to the existential-phenomenological perspective, appraised earlier as part of this study. The researcher's and the participants' perspective enable another perspective, where the study integrates across the psychological, emotional and existential significance of PA in the lives of the inhabitants of the study area.

Whereas psychologists and geographers have undertaken numerous studies on the definition/significance of PA (Kyle, Jun, and Absher, 2014; Scannell and Gifford, 2010b, Ramkissoon, Weiler and Smith, 2014), no systematic studies have covered PEB and the linkage of the improvement of PA (in the context of rituals, bonding, and identity) with phenomenology, neurophenomenology, and insights from neuro-science as the guiding theoretical frameworks. The next section appraises selected studies on the history and psychology of filth and PEB, to facilitate its integration into subsequent chapters of the study.

2.4. HISTORY OF FILTH AND PHILOSOPHY OF AESTHETICS IN CONNECTION TO COLONISATION AND URBANISATION IN NIGERIA

History of filth in Nigeria reflect on scant archival reports of the colonial discipline of town planning that incorporated the British policy of the late 19th century. First, her policy was enuciated and implemented in Lagos as the colonial capital, the seat of power, a focus of development, a model to be emulated by up and coming urban centres. Therefore, a survey of what transpired gives a hint of how filth was managed in Nigeria.

Colonial public health interventions laid the basis for opinions, arguments, ideas, visions and failures that are the bane of postcolonial town planning discourse that shapes several towns till date. For example, the 1863 Lagos township improvement

ordinance which was promulgated for the sanitation of Lagos but met stiff resistance from irate landowners shortly after its implementation because the exercise led to the destruction of their properties. About the same time, a milestone statement by Sir Richard Burton in his book says clear the “Lagos Stables” that the site of Lagos is “destestable” (Oduwaye 2009). Still not satisfied with the achievements of existing Acts in effectively sanitising Lagos, other Acts were promulgated which included the Swamp improvement Act of 1877 and “the clean-up Lagos campaign” were introduced.

“The Clean-up Lagos Campaign”, declared war on squalor and filth. The initiative made use of an army of volunteers mostly secondary school students and young African male aides charged with the responsibility to rid Lagos clean of dirt including moral stench seen from bills advertising alcohol, brothels and dance clubs (Ochiagha 2018). Householders and owners of occupied lands throughout the town are requested to sweep/clean the streets and around their premises at least once a week. While the filth of Lagos was concomitant with the colonial process of urbanisation, but two contrary narratives/stereotypes were given: On the one hand, the filth was attributed to African ignorance, civil disobedience and poor living habits (perpetuated by the colonialists). On the other hand, the second narrative, the Yorubas, (the dominant ethnic group at the time) who mostly occupy Lagos at the early stages had a clear sense of sanitary needs (Bigon 2008).

The 1924 bubonic plague which resulted in the relocation of hundreds of Africans engendered the establishment of the Lagos Executive Development Board (LEBD) of 1928 by the Lagos City Council. The LEBD pulled down insanitary buildings and slums at the expense of the Africans to the satisfaction of the Europeans. Buoyed by western aesthetic criteria, LEBD carried out the Central Lagos Slum Clearance in 1955 (Bigon 2008). As a form of public policy, there was the formation of the physical segregation of European quarters different from the Africans; the LEDB activities concentrated on the settlements occupied by Africans as the Europeans occupied newer and accessible structures with front and back gardens together with other infrastructural facilities.

The relevance of the historicized account of filth to the present study is seen from the following perspectives; first, large agglomeration of people other than one ethnic group is an indication that urbanisation compounds the problem of the large concentration of waste in illegal dumping sites, generated mostly by the in-migrants (Oduwaye 2009, Ogu 2000) which overwhelms the host community. Second, the use of health officers for sanitation has historical and legal backings since their main functions are public health and safety. Third, the use of films to transmit the intentions of the government to drive home the point of personal hygiene and public health has been in the public domain for a long time. The only difference in contemporary society is the use of the print and electronic media which were not so common in the time past.

2.5. PEB AND ENHANCED ATTITUDES

This section appraises studies in PEB about attitudes, and behaviours at the individual and collective level. It is mainly focused on the works of Larson *et al.* (2015), and Steg and Vleg (2009). The two studies provide definitions, descriptions, and analysis of PEB, conservation lifestyle behaviours, predictors, and correlates of PEB, environmental attitudes, personal and social factors, and the higher order dimensions of preservation and utilisation. These are also the critical dimensions which the study intends to build on. PEB domains such as conservation lifestyles, social environmentalism, environmental citizenship, and encouraging PEB (Azjen 1991) constitute the key focus of the appraisal under this section.

Studies on human-environment interactions primarily focus on factors that influence the adoption of behaviour and practices that minimise ecological harm, especially based on a growing understanding of how nature functions, to guide decisions towards natural resource conservation. A principal component of the PEB construct is that some behaviours are inherently harder than others to carry out, and participation levels of residents vary, especially because of certain belief systems (Larson *et al.* 2015). For example, where personal costs and benefits are involved, personal satisfaction (hedonic goals) and saving money could serve as the motivating objective, compared to when one's intention is to achieve the collective good (normative goals). This could be demonstrated in a situation where we compare reuse of waste/recycling

(personal/hedonic) with a community-wide sanitation exercise, or protecting the community water scheme (public/normative goals). Most studies argue that immediate motivation would be the prioritisation of personal interest over and above group interest (Larson *et al.*, 2015; Steg and Vleg 2009). This line of thought (which is quite fundamental about this study) can be extended to wider PEB domains such as social environmentalism, and environmental activism.

In the commonly available PEB studies, conservation 'lifestyles' or practices associated with environmentalism and the environmental movement (universal actions) are often expressed in the form of waste reduction, recycling, as well as green and eco-friendly purchasing, among other methods (Larson *et al.*, 2015). Environmental activism through civic engagement is, therefore, expressed in actions such as the signing of petitions, writing letters, voting to promote environmental causes, and donating money to pro-environmental initiatives. Larson *et al.*, (2015) pointed out the problem of anti-environment behaviour without guidance as to its resolution. Steg and Vleg (2009) address this defect by focusing on the use of the norm activation model (NAM), and the theory of planned behaviour (TPB).

The conceptualisation of PEB into diverse categories has significantly enriched and advanced the understanding of human-environment interactions. However, despite the increasing and diverse studies on PEB, only a few of them have focused on the application within a suburban context, based on the principles and techniques of phenomenology and neurophenomenology as theoretical fields in substantiating the contradictions between urban residents, and their physical environment. This study on PA, PEB/Waste and related contradictory/conforming behaviour, therefore, contribute to addressing this gap. It is with regard to this that the study has included the insights from neuroscience (about perception, attention, emotions, somatosensory processing and language) for a more in-depth understanding of the object-directed and action-oriented activities relating to solid waste generation, and disposal in the case study settlement.

These aforementioned insights from the field of study have assisted in reaching a better understanding of the ongoing diminishing of the natural habitat and sacred groves to accommodate the influx of population from Benin City. With an increasing

population, the environment is desecrated through illegal dumping and littering. A key concern of the study under PEB, is the inability of the residents to take advantage of the 3Rs (reduce, reuse and recycle) to improve their income generating skills, rather than continue the primordial contradictory practices of open-air burning, and indiscriminate waste disposal.

2.6. HHWM ATTRIBUTES

The study of waste management in urban areas usually entail factors such as generation, collection, transfer and transportation practices, disposal, reuse, and recycling influence waste management by the 3Rs (reduce, reuse, recycle) as the common points of reference. Other issues include socio-cultural, financial, environmental, legal, technical and institutional drivers (Wilson *et al.*, 2012: Sujauddin, Huda, and Rafiqul, 2008). The rate of household waste generation is influenced by family size, education level, and monthly income, while attitudes related to household waste utilisation are affected by gender, membership of environmental groups, peer influence/pressure, and land size (Sujauddin, Huda, and Rafiqul, 2009). Other secondary factors include the location of the household, adequacy in the supply of waste containers, or recycling facilities. Long distances to such facilities increase the probability of waste dumping in open areas (Ekere, Mugisha, and Drake, 2009).

Within municipal waste management, weight/volume, charging cost-based fees, positively incentivises households to reduce waste, and also to adopt fees for separation in order to reduce recycling. A more comprehensive integrated sustainable waste management (ISWM) and the waste-aware approaches can be seen in Figure. 2.4, and Table 2.3.

For example, Tables 2.3 and 2.4 sets out the six criteria used to assess the quality of the municipal waste collection service. The first and most important step, the waste-aware concept, motivates about is the criteria used for deriving indicators. The criteria include the degree of environmental protection in waste treatment, and disposal. In addition to indicators for the 3Rs, the concept provides materials on user-guidance and a format for inclusivity (right to be heard, the level of public involvement, public education, and awareness). Other provisions include the degree of financial

sustainability (cost-recovery/accounting, access-to-capital), sound institutions, and proactive policies (regulations/legislation, regulatory control/enforcement management, and monitoring). Following a successful prototyping process in

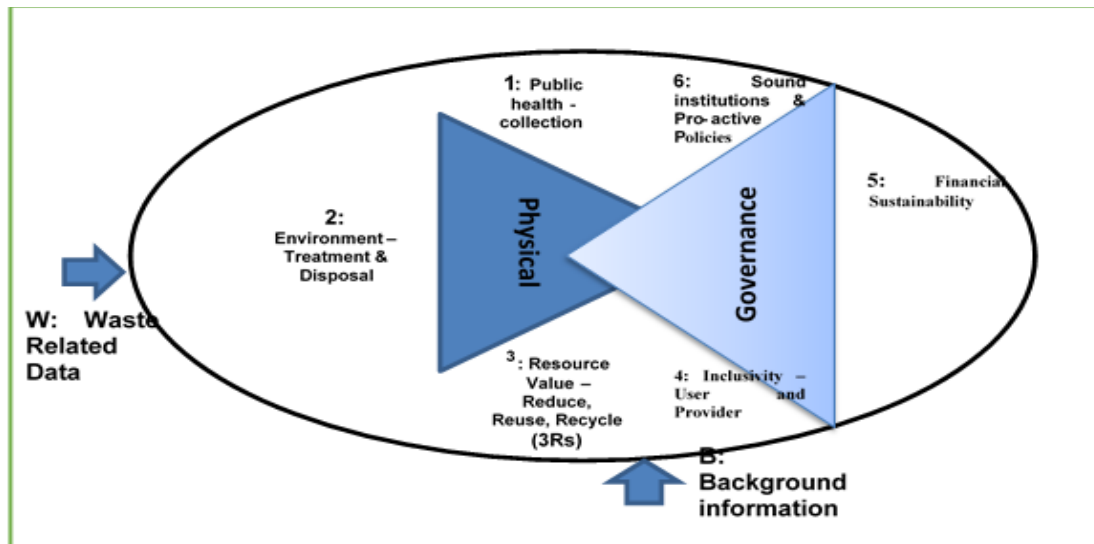


Figure 2.4: Integrated sustainable ISWM framework
Source: Wilson *et al.*, (2015 p.331)

Table 2.3: Four quantitative indicators for the physical components of a solid waste management system

Source Wilson *et al.*, (2015) p.334

Physical component	Indicator name and definition	Traffic light				
		Low	Low/Medium	Medium	Medium/High	High
Public health	Waste collection coverage: % of household who have access to a reliable waste collection service	0-49%	50-69%	70-89%	90-98%	99-100%
Waste collection	Waste captured by the solid waste management and recycling system: % of waste generated that is collected and delivered to an official facility	0-49%	50-69%	70-89%	90-98%	99-100%

Physical component	Indicator name and definition		Traffic light	Colour	Coding	
		Low	Low/Medium	Medium	Medium/High	High
Environmental control disposal	Controlled treatment or disposal % of the total municipal solid waste destined for treatment or disposal which goes to either a state-of-the-art, engineered alternatively, 'controlled' treatment/disposal site	0-49%	50-74%	75-84%	85-94%	95-100%
Resource value-'3Rs'- Reduce, reuse, recycle	Recycling rate: % of total municipal solid waste generated that is recycled. Includes materials recycling and organics valorisation (composting, animal feed, anaerobic digestion)	0-9%	10-24%	25-44%	45-64%	65% and over

Table 2.4: Criteria used to assess indicator 1C; Quality of the waste collection and street cleaning service

Source Wilson *et al.*, (2015) p. 334

No.	Criterion	Description
1C.1	Appearance of waste collection points	Presence of accumulated waste around collection points/containers
1C.2	Effectiveness of street cleaning	Presence of litter and overflowing litter bins
1C.3	Effectiveness of collection in low-income districts	Presence of accumulated waste/ illegal dumps/open-air burning
1C.4	Efficiency and effectiveness of waste transport	Appropriate public health and environmental controls of waste transport
1C.5	Appropriateness of service planning and monitoring	Appropriate service implementation, management and supervision in place
1C.6	Health and safety of collection workers	Use of appropriate personal protection equipment and supporting procedures

several cities (Monrovia Liberia, Maputo Mozambique, Lahore Pakistan, Guadalajara Mexico and Belfast United Kingdom), the waste-aware analytical framework can now be applied, and motivate the community stakeholder to effectively contribute to the waste system. The rest of the indicators cover issues such as transport, treatment,

and disposal. The cities engage in the application of the framework, reflect diverse variations along factors such as income levels, socio-cultural backgrounds, family size, and lifestyles. The revised ISWM indicators also allow for benchmarking a city's performance for comparison with other cities.

In developing countries, most research work on waste management point in the direction of factors influencing the institutions, and elements associated with solid waste management, to the detriment of studies towards understanding the indirect motives of residents' behaviour. Some examples of the exception to this general observation are the studies of Corral-Verdugo (1997) in Mexico, and Li (2003) in Wuhan, China. Their studies centred on issues relating to re-use and recycling by residents who had adequate knowledge of "how" and "why" they have to recycle. They explored the factors influencing environmental behaviour, the ways to motivate environmental attitudes, the relationship between ecological knowledge/conduct and action, among others. Whereas Corral-Verdugo (1997) used a combination of self-reports and observation methods of the conservation behaviour of residents of Mexico City, Li's study used quantitative research methods to understand the recycling behaviour of residents of China's fifth largest city, Wuhan.

Corral-Verdugo (1997) investigated the conservation behaviour of 100 randomly selected Mexican housewives, based on dispositional factors (beliefs, motives and competencies). The results were that beliefs (assessed verbally) only predicted the self-reported conservation, while competencies (assessed non-verbally) were related to observed behaviour. However, motives (assessed verbally and non-verbally) predicted both. Further, the study contended that observed behaviour about waste is better indicators of actual behaviour, rather than self-reports. This position is taken because the study discovered that participants assessed/scored themselves highly even when they did not merit such marks. Therefore, self-report as a measure/criterion for participant behaviour concerning the perception of beliefs, is not reliable as it is subject to misuse by residents. Corral-Verdugo's position is corroborated by Chao and Lam (2011), when they used both self-reported behaviour and other reports as measures responsible for environmental behaviour. With the use of quantitative research techniques by 65 trained students to observe 172 roommates (69 males, 103 females) of the National Sun Yat-sen University Taiwan, the study found that the

value/significance of self-reporting technique as a measure of data gathering is often overstated.

By virtue of its peri-urban location, Urora can be expected to generate and accumulate more waste than would be the case in core urban residential areas. Waste sorting would, therefore, have a significant impact on the economic efficiency of the HHSWM system as it is an essential part of the re-use process. From the study by Corral-Verdugo, and corroborated by Chao and Lam, we learnt that observed behaviour is a better indicator of actual behaviour. This knowledge was incorporated in this study through the shadowing of five households for almost one week each to get to know their waste disposal habits. A vital contribution of this study to HHSWM is an understanding of the relationship and integration with PA and rituals in waste management practices. This relationship has previously not received the attention it deserves, and this is a critical factor in the contradiction between PA and PEB, which in turn engenders indiscriminate waste disposal practices even in places where residents crave to reside. The study has established this link, and explored the inter-connections further with the hope of reducing the prevalence, and impacts of improper waste disposal/management practices.

2.6.1 Bottom-Up approaches to waste management

This section appraises case studies of bottom-up approaches to waste management at the individual and community levels. In this regard, the study considers the works of Sinthumule and Mkumbuzi (2019) in Bulawayo in Zimbabwe and Malik *et al.*, (2015) on solid waste segregation through recycling efforts in Putrajaya, Malaysia. The choice to appraise these two studies is underpinned by the fact that they specifically provide in-depth analysis of citizens knowledge of 3Rs, community participation and partnership, factors and attitudes that motivate citizens to participate in waste management.

Both studies used mixed method approaches. The Zimbabwean study used a combination of door-to-door surveys, with interview-administered questionnaires, semi-structured interview and observations to collect data from 375 (204 women 54.4% and 171 men 45.6% randomly selected households in Nkulumane, a suburb of Bulawayo to investigate undocumented efforts in community participation in HHSWM.

The study found that inadequate service delivery by the municipality largely due to paucity of funds was a major stumbling block that undermined effective waste management. Consequently, this constraint forced the establishment of a community-based organisation (through efforts of concerned residents) that involves the development of a close-knit relationship between local authorities, private sector and host communities. An ideal community-based organisation is expected to hold meetings, conduct elections, make do with incentives for their efforts to initiate and facilitate effective solid waste management, while simultaneously provide services that will ensure the separation of waste at source, 3Rs, composting, waste collection and transfer to a disposal site.

The relevance of the two studies to the present one is in the areas of community organisation with respect to holding regular meetings, facilitate and initiate programmes among the residents. These facts open another chapter in the study location as regular meetings are held between the landlords and landladies' to discuss matters of mutual interest such as power outages, seasonal roads, indiscriminate waste disposal at road junctions among others. What is lacking is that the long length of time they have been meeting is yet to translate to human environment interaction (embodiment), in a wholist fashion, rather there exists a separation, a disconnect between human and environment hence the incessant/indiscriminate solid waste disposal.

2.7 ENVIRONMENTAL PSYCHOLOGY AND HHWM

Visschers, Wickli and Siegrist (2015) undertook research entailing a mailed survey of 829 participants sampled from a Swiss-German population of 59% females and 41% males. The study was aimed at investigating factors that best explain the self-reported quantities of food waste in households. With the use of the Theory of Planned Behaviour (TPB) and Good Provider Identity (GPI) as the significant lens with which to undertake the study, three fundamental constructs were critical for the understanding of behaviour in the overall investigation. The constructs are intended to carry out the practice, motivation as an indirect effect (norms and opinions), and willingness/control over the behaviour. These are features derivable from the TPB (Ajzen, 1991), which implicitly assumes that attitudes, subjective norms and perceived

behavioural control are automatic, and strongly correlates the intention and behaviour of the individual in a given situation.

Visschers, Wickli and Siegrist (2015) identified that through personal norms and attributes, people exhibit a dislike for food waste with consequences that result in environmental, financial and health concerns. In a similar vein, another key finding was that the older the respondent, the higher the propensity to embrace conservation, and reduce wastage. Through positive moral norms/obligations people are less likely to waste food. Perceived behavioural control can, therefore, be argued to be a significant predictor for reducing food waste. Demographically, households with children at home tend to generate more waste than households without children. Such waste could be in the form of left-over fruit and vegetables. Good-provider identity was deemed most likely to contribute to increased food waste as the intention is to continuously provide, no matter what.

In a similar study, using The Broken Window Theory, Holden (2008) reported that studies by researchers of the University of Groningen in the Netherlands, and a similar study of the Harvard University in the USA, show how degraded surroundings (environment) can degrade behaviour. Among the crucial findings of the study is the insight that if people see one norm or rule violated by others (such as littering and stealing), they are more likely to break the same, or other norms themselves. To demonstrate the violation of orders, the experimenters surreptitiously tucked useless fliers on bike handles parked in a driveway alley with signs that no graffiti was allowed. They watched on how riders tucked the fliers into other bikes, while the majority littered the once-clean driveway with the useless fliers.

The idea of littering is considered further in the relationship between personal attitudes and perceived health risks where the two factors were at variance, suggesting a mediating role between personal norms and behaviour (Ojedokun and Balogun 2013). On the mediatory role of attitude to littering in the relationship between self-monitoring and responsible environmental behaviour, Ojedokun and Balogun (2013) undertook a study with a sample of 1 360 participants (males 770, 56.60% and, 570 females 43.40%) in Ibadan, Nigeria. A variable is deemed to be a mediator factor when its inclusion in analysis results in a significant change in the relationship between the

independent and outcome variable (Baron and Kenny, 1986). Self-monitoring constitutes a key difference across different types of attitudes, behaviours, experiences, cognitions, emotions, and motivations which are inherent in each person (Koestner, Bernieri, and Zuckerman, 1992). Therefore, self-monitoring is the extent to which individuals can and do monitor their self-presentation, expressive behaviour, and non-verbal affective display. A significant finding of the study is that self-monitoring is not a direct environmental behaviour trait but a crucial antecedent to attitudes towards littering, while attitude towards littering mediates the relationship between self-monitoring and responsible environmental behaviour.

In a recent study on the health implications of waste in developing countries, Lenkiewicz and Webster (2017) argue that settlements which consistently harbour waste, risks the following; stunted child growth, endemic cholera and diarrhoea, the proliferation of eye and skin infections, and respiratory health problems. The views expressed by these researchers have assisted the study to shed light on the relationships and connections of the effects of human-environment neglect in the settlement.

The four studies examined, provide additional insights into variables such as bio-social characteristics, personal norms and attitudes, and perceived behaviour control. These are factors to consider in the pursuit of a multi-disciplinary understanding of waste management behaviour and practices. From the studies, both low and high self-monitors could benefit from externally visible interventions to discourage individuals from engaging in littering behaviour. When considering an attitudinal change, self-monitoring is the yardstick to target among individuals within a group in order to transform an unwanted practice/behaviour to a more desirable alternative. If this line of thought is stretched further, it follows that to stem the tide of littering the intervention should target the cognitive aspects of individuals but within a broader social context. An aspect that is germane to the study is the health implications of indiscriminate waste disposal with its consequences of open-air burning.

The studies reviewed above were large-scale research projects primarily anchored in quantitative methods. By so doing, some of the variables considered may have averaged/cancelled out. In particular, the studies cover participants in human terms,

thus suggesting that participants' lived/embodied experiences were not captured, and that, therefore, the findings are devoid of such phenomenological insights. In contrast, this study constitutes a small-scale effort, anchored in qualitative ethnographic techniques for integrating insights from phenomenology into environmental-psychology findings, as reported in studies such as those appraised in this section.

2.8. CONCEPTUAL FRAMEWORK OF THE PA, PEB, HHSWM DISCOURSE

Ravitch and Riggan (2017), note that among other contributions, the conceptual framework, serves as an analytical tool for conceptual distinctions and organising of ideas. Figure 2.5 presents the key theoretical features which underpin the study.

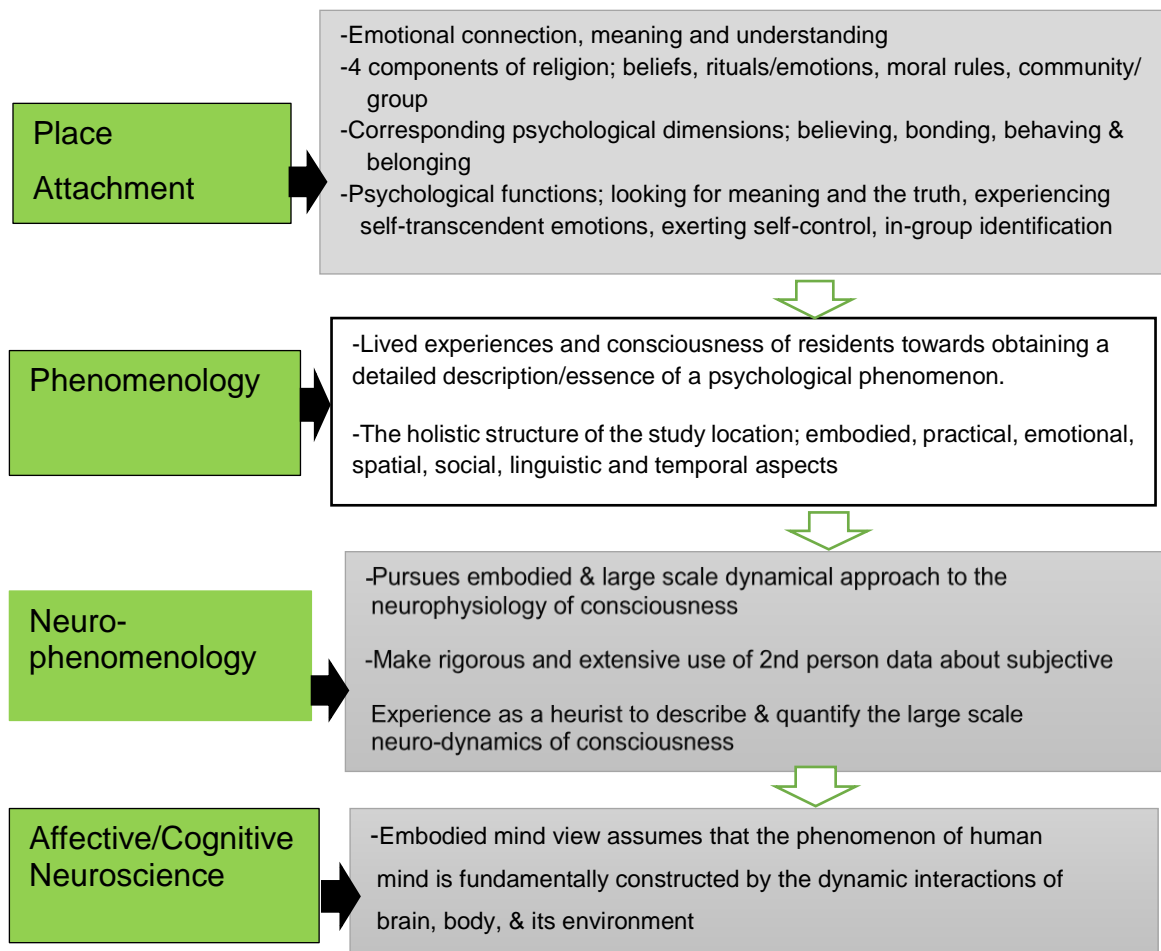


Figure 2.5: Stage progression of PA and PEB/Waste management Discourse

The motive behind undertaking the study is the mismatch between the strong PA and weak PEB, as evident from the way the residents live, and coexist with indiscriminate solid waste within Urora settlement as one case among several such experiences in African cities. The fact that the residents continued to live in such a deplorable state, even at the expense of their health and well-being, provoked the researcher to address the seemingly contradictory phenomenon by looking at similar or near- similar situations. In the course of the study, the author discovered that the lived experiences - the senses of the residents (and by extension their culture, a way of life) - would constitute necessary research issues in order to enable a better understanding of the contradictory phenomenon.

In alignment to research, the fields of philosophy, anthropology, sociology, and psychology were appraised in order to arrive at insights/understanding from specific related contemporary studies. The perspectives discerned from studies, appraised together with the research questions, facilitated the conceptualisation of the methodological approach as presented in chapter 3.

Resulting from the ethnographic observation, the study adopted the participant-observation approach, which afforded the researcher the opportunity to become immersed in the day-to-day activities as they occur in the case study settlement. A recording of essential events complemented the direct observation, fieldnotes and journals. A video camera, pen and jotter were also quite useful.

The phenomenological approach guided the engagement of five heads of households of different ethno-religious and income groups when telling their waste management/disposal story through the semi-structured in-depth interview (SSDI) across the three broad areas of PA, PEB, and contradictory/conforming issues subsequent to shadowing their respective households for one week. The study employs these tools and methods as part of a broader process towards better understanding of sustainable city waste management from a developing country perspective.

The key related debates from the literature appraisal cover issues such as the form of objective/cognitivist assumption that the mind is located in the head, and subjective assumption which interprets place as subjective representations (cognitive or

affective) within the experiencers. This study assumes an existential-phenomenological perspective, which views people-environment relationships as enmeshed and inter-twined as one holistic embodiment. This position is adopted, because arising from related feelings and attachment, people and their environment should be viewed as constituting a unified phenomenon. In other words, even though the relationship can be conceptually assumed to take a dualistic manifestation, it is normally existentially experienced as a holistic unity. The position is further enriched with the application of (neuro)phenomenological tools, especially as mediated by insights from cognitive neuroscience.

CHAPTER THREE

RESEARCH DESIGN AND METHOD OF STUDY

"There are two things to be considered with regard to any scheme. In the first place, 'Is it good in itself?' In the second, 'Can it be easily put into practice?'"

Jean-Jacques Rousseau (2004)

With regard to Rousseau's quotation, this chapter considers the fact that there are many research methods, and that there must be reasons for the choice of one over the others. The chapter therefore presents the geographical location, socio-political dimension, and household solid waste management practices within the case-study settlement. The research instruments employed in the course of the fieldwork of the study are then presented and elaborated with the overall research questions, and sub-questions.

The ethnographic observation approach involves the act of perceiving the activities and interrelationships of people in their real-life setting, and primarily from their perspective (within the context of their lived experience), but relying on the five senses of the researcher (Angrosino, 2007). The ethnographic method involves the researcher establishing and maintaining rapport with the research subjects in order to systematically, but unobtrusively, co-exist with them for a sufficient period as guided by nature and scope, as objectives of the study.

The combined framework as informed by phenomenology and neurophenomenology is imperative, because of the PA dimension of the study where the lived-experiences and cosmovision of the inhabitants are considered the primary foundation for an understanding of the apparent contradiction between PA and PEB, with household solid waste serving as the empirical context for exploring their relations, interactions, and inter-connections.

3.1 RESEARCH STUDY LOCATION AND CONTEXT

3.1.1 Description of research methods in steps

Step 1: The first step involved a detailed literature appraisal as presented in Chapters 1 and 2, which led to the proper understanding of HHSWM, PA, PEB, and rituals. Through the appraisal, the conceptual relationships and connections between the concepts were systematically argued such that PA features can be understood to be integrated and mediated by rituals. Under PA, the significance of the contending rituals (ranging from family and community prayers, ceremonies related to birth and burial, marriages, feasts and festivals) was elaborated. Given that most African communities continue to be imbued with traditional culture and belief systems, it became the first port of call to use in exploring the dimension of ritual for Urora settlement.

The research question as to why the strong PA exhibited by residents does not foster/facilitate stronger PEB, and, thus, running contrary to the commonly held view in Western-based studies) was subsequently addressed. This fact was one of the motivating factors for this study, and especially concerning the motive(s) behind indiscriminate solid waste disposal, and why PEB seems to be lacking in a settlement where most of the residents have been living for generations. Arising from this context, the study was drawn towards a holistic appraisal rather than a reductionist/positivistic approach, hence the engagement of ethnographic, (neuro)phenomenology philosophy and neuroscience fields to guide the research.

Step 2: (Chapter 3 - Research design and method of study): As a qualitative study guided by case study research, ethnographic field observation with semi-structured interviews and phenomenological/neurophenomenological informed tools were employed while adopting the position of participant-as-observer as guided by Deacon *et al.* (2010; 250) Angrosino, (2007) O'Reilly, (2005), and coupled with focus group discussions. From the phenomenological perspective, heads of households were consulted based on one-on-one phenomenologically guided interviews using the second-person method proposed by Olivares *et al.*, (2015). The assistance of a community liaison facilitator was engaged to identify the physical boundaries of the study location, and a Garmin hand-held GPS Map instrument was applied to take point

data readings of important areas (Appendix 3), which were transcribed/expressed in map form (see for example Figure 3.4).

Through purposeful selection (non-random sampling technique), interviews were administered through a snowball sampling approach to 30 heads of households who had spent not less than ten years in the settlement, a requirement as understood from Kyle and Chick (2007), (see Appendix 2). The interview activity opened up new areas for deliberation during focus group discussions. In addition to interviews, observation methods were used to study individual households and community practices, such as the Sunday worship, in order to understand their relationship with PA. These data tools were used in the gathering of information on issues relating to PA, PEB, as well as conforming/ contradictory features in the PA-PEB discourse.

Step 3: PA attributes were explored, as elaborated in Chapter 4. This was mainly based on using a combination of fieldnotes, diaries, and other direct observation methods to record events and ceremonies that demonstrate PA. Before this exercise, a format containing an interview guide under the three sub-headings of PA, PEB, and conforming and contradictory concerns (see Appendixes 1, 4,5, 6 and 7), were applied across all the three data collection tools (key informants interview, focus group discussions, heads of households' phenomenologically guided interviews).

Through the data tools employed, the study distinguished the issues into the following themes and sub-themes (as can be seen in Table 4.2): family and community rituals, rituals in enhancing bonding and sense of belonging, individual and collective awareness of the waste condition. Phenomenology and neurophenomenology elements of forms of perception, attention, memory, emotions, somatosensory and language were employed to give new perspectives on the issues of PA. The researcher engaged these elements/forms to reach a better understanding as to why the residents were unable to sense the 'worth' of waste so as to convert it to wealth, rather than engage in anti-environmental practices such as open-air burning and illegal dumping.

Step 4: In this step, the sub-themes of PEB/waste are analysed and presented in Chapter 5. Indiscriminate waste disposal practices, the different compositions of waste at generation and disposal points, waste condition, and public health issues were

identified, and analysed separately based on each category as they form separate sections based on the research sub-questions as a guide. For example, with regard to indiscriminate waste disposal practices questions were centred on where residents dispose of their waste, and similar issues as presented in Appendix 2. The responses were collected, and analysed in the order of think, select, isolate, listen, and observe, as the researcher identifies and compare similar patterns of rituals as presented in Table 3.1.

The key difference between Chapter 4 and 5 is that at this stage the second-person method of phenomenological interview was engaged, as understood from Olivares *et al.* (2015), and analysed in the order of *epoche*, transcendental phenomenological reduction, and imaginative variation as understood from Moustakas (1994), and Figure 3.4. Of particular relevance at this stage is the use of visual, auditory, olfactory, and gustatory perceptions to interrogate issues arising from the effects of indiscriminate waste disposal from the perspectives of Merleau-Ponty's (1962) perception and attention, as well as Csordas's (1993) somatic modes of attention. I engaged these lenses in order to shed light on the 'worth' and effects of solid waste in the settlement.

Step 5: This step deals with the sub-themes of conforming, or contradictory issues as presented in Chapter 6. Using a combination of ethnographical and phenomenological tools, it was possible to identify and apply the following sub-themes: PA versus waste condition, whether strong PA correlates with strong PEB, or *vice versa*; the underlying drivers which sustain/drive the contradiction/conforming interaction in PA, versus waste condition, and how it modifies underlying drivers towards waste management/disposal practices, and behaviour. Such drivers that sustain/facilitate contradictory conditions were seen in the physical phenomenon that is primarily characterised by the degradation of the environment, as residents are not called to order, while the degraded environment encourages irresponsible behaviour. This behaviour is further accommodated in the language about waste generation and disposal.

Step 6: At this stage, the study consolidates the findings of Chapters 4, 5 and 6, as presented in Chapter 7. Given the various concerns in PA, PEB, and conforming/contradictory concerns in the waste management discourse in the context

of the life-world of Urora residents, it became possible to make the following conclusions. PA features appear to be quite strong in the locality as far as social issues are concerned, but without a corresponding strong PEB attitude, as the residents lack some basic hygiene, and sanitation habits. While the 3Rs are yet to take root in the settlement, the non-availability of a drainage system compounds the problem of indiscriminate waste disposal, leading to submergence where over 70% of the area becomes waterlogged during the wet season.

As the wet season lasts for about seven months, the absence of a drainage facility renders a significant portion of the area inaccessible, while it also encourages the residents to discharge more of their solid waste into the stormwater. Given the increasing population and urbanisation, the natural habitat will continue to experience desecration for as long as the waste management in the settlement continue to receive little and less attention. The eventual outcome of this behaviour is the escalation of environmental degradation, and the residents' frustration and disillusionment with the settlement, thus tending towards place detachment, and alienation (PD/A). From the perspective of (neuro)phenomenology, for the embodied mind to continue to live, it must adjust to the prevailing reality and as would be expected, behaviour and language have been conditioned/modified to accommodate the prevailing circumstances, and situations.

3.1.2 Overview of the case-study settlement

The principal focus of this study revolves around the exploration of the underlying drivers of the apparent contradiction in strong sense/experience of PA, coupled with weak household waste disposal/management practices in low-income residential neighbourhoods in Urora settlement. The study on PA and PEB applies the HHSWM phenomenon to the conformity/contradiction between the two concepts, and is based on interrogating a case study which emphasises the complexities of the interactions between PA, PEB and HHSWM in theory, and empirically. In this context, this study recorded happenings sequentially in a life-world situation with Urora residents as participants. Given the psycho-dynamic overtones of PA, this section presents an overview of the key contextual conditions. In this regard, the study relied on multiple sources of data and evidence as emphasised in Yin (2011) and Flyvbjerg (2006).

As alluded to earlier, Urora settlement was prioritised due to its unique characteristics. Formerly, it existed as a close-knit community primarily bonded by traditional values, and its belief systems were overwhelmed by indiscriminate waste disposal due to the ever-increasing population. However, in recent times, it is overwhelmed by indiscriminate waste disposal due to the rapid urbanisation of Benin City in general. Given the structures of the traditional/cultural settings, it was deemed necessary to understand how residents who initially were homogenous in outlook have responded to the present situation of pollution, and the degradation of their formerly pristine environment. How have the cultural and religious beliefs of the people adjusted/accommodated the prevailing situation in the face of the overwhelming incidence of indiscriminate waste disposal, which has given the settlement a bad image of filth? The choice of the settlement mirrors the effects and efforts of what occurs at the community level, which by extension gives the picture of most communities in the state and, indeed, in Nigeria in general.

Given the interest of the UN in sustainable development, and the New Urban Agenda (NUA), which programme most nations of the world, especially developing countries, are expected to key into. For example, the NUA emphasises inclusive, sustainable, safe, and resilient cities; it remains to be seen how these countries have responded through the engagement of the people at grassroots level. Another characteristic feature of Urora is the predominantly low-income group status of the residents, who most of the time are discriminated against politically, especially in the provision of facilities and amenities, in favour of the rich. With the income gap between the rich and the poor getting wider, it remains a challenge to see how this income group can cope with the challenges of environmental pollution and degradation caused by urbanisation, and population explosion.

3.1.3 The Site: Urora Quarters, Benin City, Nigeria.

As shown in Figure 3.2, Benin City is the capital and administrative headquarters of Edo State. As one of the thirty-six states of Nigeria, Edo State came into existence on the 27th of August 1991 as a result of the splitting of the now defunct Bendel State into the Edo and Delta States (see Figures 3.1 & 3.2). Benin City has a long history of tradition and culture spanning over several centuries and now serves as the

administrative headquarters of the Oredo Local Government Council (OLGC). Benin City presents four distinct residential zones, which are the core area, the intermediate area, the planned settlement areas, and the suburban areas (Ogu, 2000). Residential density increases with distance from the core area, but with poor environmental service conditions on all fronts (both at the centre and periphery). The suburban area (former villages) became part of the city during the oil boom era of the 1970s that intensified urbanisation in Nigeria. The outlying districts experienced invasion/encroachment as urbanisation continued unabated.



Figure 3.1: Map of Nigeria showing Edo as one of the thirty-six states

Source: Adapted and modified from DIVA-GIS

The settlement lies between latitudes $6^{\circ} 22'04''$, $6^{\circ} 22'43''$ N and longitudes $5^{\circ} 41'11''$, $5^{\circ} 42'23''$ E with a population of 48 219 (2018 estimate projected from the 2006

National Population Census), and is situated within Ikpoba-Okha Local Government Council, which is one of the 18 local councils of Edo State. Idogbo, the administrative

headquarters of the council, is about 20 kilometres from Urora. However, the study location has recently been engulfed by Benin City, the state capital, due to a population explosion primarily driven by rapid urbanisation.

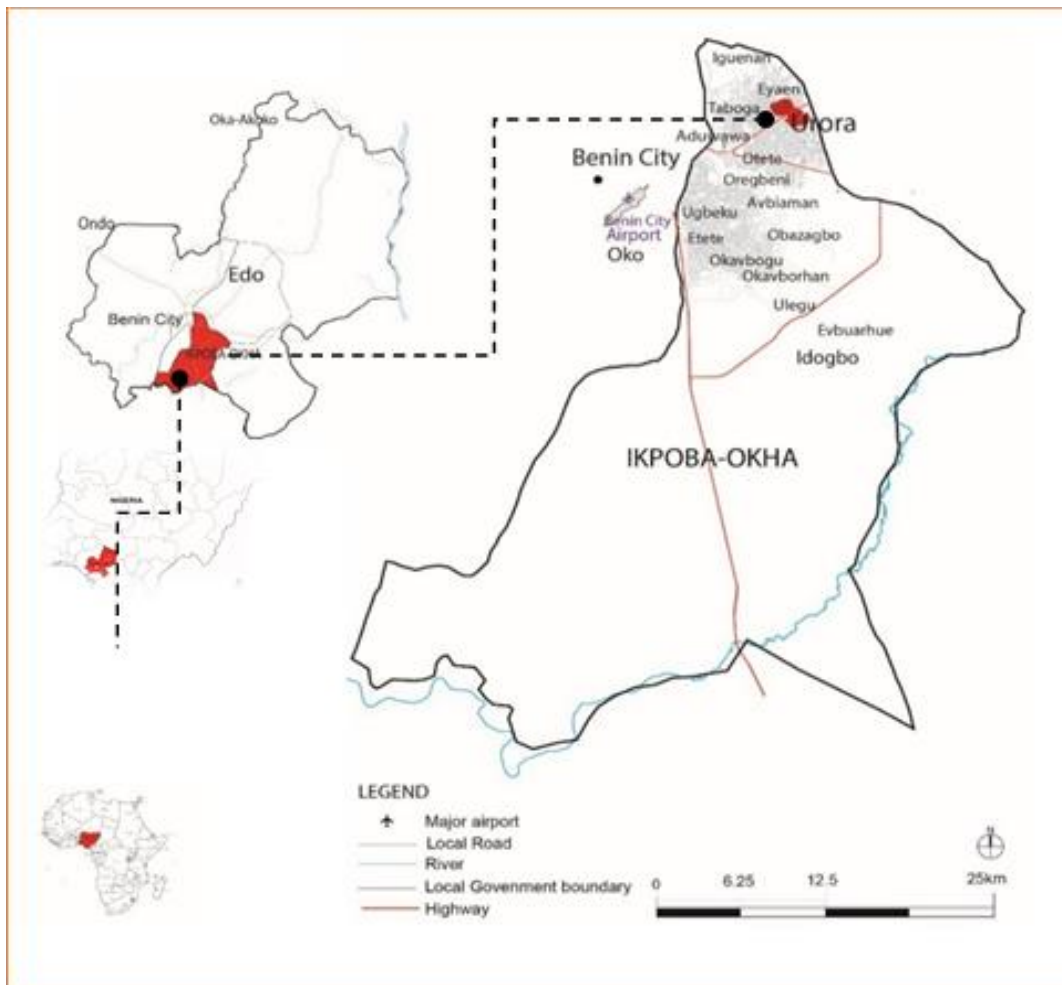


Figure 3.2: Contextualising Urora settlement

Source: Adapted and modified from DIVA-GIS

3.1.4 Population, climate and religious inclinations of residents

Secondary data source on national population census puts the population of Urora at 48 219; with 23 941 males and 24 278 females (2018 estimate), Benin City itself at 1 051 600 (NPC, 2006), Table 3.1 presents the projected age group of the study area. Given a projection of a 2.5 per cent crude growth rate for 12 years (2018) the projected

population would be 1 682 158, with a density of 1 200/km², in a total land area of 1, 204km². Other information relating to PA from the NPC, deals with ownership of dwelling units, and tenure status of dwelling units for the whole state. The NPC estimates total house ownership status of 701 073 units, with number of households reported to be 375 336, and ownership status was 361 618 dwelling units at the state level as at the year 2006.

Table 3.1: Age groups of Urora community

Category	Males	Females	Total	%
0-14	8 906	9 032	17 938	37.2
15-64	14 245	14 445	28 690	59.5
65+	790	801	1 591	23.3
Total	23 941	24 278	48 219	100.0

Source: Adapted and modified from NPC 2006

The real and the projected steady increase in population over time indicates the enormity of the problems, as more and more people will continue to live in the settlement, and by so doing impact positively or negatively on the environment. Given the current rate of lack of municipal or residents' concerns for halting the menace of indiscriminate waste disposal, degradation of the environment can be expected to continue escalating.

The climatic condition for Benin City is characterised by two seasons, the dry and wet seasons. The dry season starts in November and lasts till March, while the wet season is from April to October. The monthly temperatures, relative humidity, and precipitation is shown in Table 3.2. During the dry season, the stifling heat can get up to as high as 36.10 °C, coupled with the North-East trade winds which tend to exacerbate the usual stench that fill the air in most parts of the settlement.

Table 3.2: Temperatures, relative humidity and precipitation of Benin City

Climate data for Benin City													[hide]
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	34.4 (93.9)	36.1 (97)	36.1 (97)	35.6 (96.1)	35.0 (95)	33.3 (91.9)	31.7 (89.1)	31.1 (88)	32.8 (91)	32.8 (91)	34.4 (93.9)	34.4 (93.9)	36.1 (97)
Average high °C (°F)	31.9 (89.4)	33.3 (91.9)	33.0 (91.4)	32.4 (90.3)	31.6 (88.9)	29.9 (85.8)	27.9 (82.2)	27.9 (82.2)	28.8 (83.8)	30.3 (86.5)	31.8 (89.2)	32.0 (89.6)	30.9 (87.6)
Daily mean °C (°F)	25.8 (78.4)	26.7 (80.1)	26.7 (80.1)	26.4 (79.5)	25.9 (78.6)	24.9 (76.8)	23.8 (74.8)	23.7 (74.7)	24.3 (75.7)	25.0 (77)	25.9 (78.6)	25.7 (78.3)	25.4 (77.7)
Average low °C (°F)	21.4 (70.5)	22.1 (71.8)	22.6 (72.7)	22.6 (72.7)	22.6 (72.7)	21.9 (71.4)	21.6 (70.9)	21.2 (70.2)	21.8 (71.2)	21.8 (71.2)	22.1 (71.8)	21.2 (70.2)	21.9 (71.4)
Record low °C (°F)	12.8 (55)	13.3 (55.9)	18.3 (64.9)	19.4 (66.9)	19.4 (66.9)	18.3 (64.9)	16.7 (62.1)	16.1 (61)	18.9 (66)	18.9 (66)	15.6 (60.1)	14.4 (57.9)	12.8 (55)
Average precipitation mm (inches)	18 (0.71)	33 (1.3)	97 (3.82)	168 (6.61)	213 (8.39)	302 (11.89)	320 (12.6)	211 (8.31)	318 (12.52)	241 (9.49)	76 (2.99)	15 (0.59)	2,012 (79.21)
Average precipitation days (≥ 0.3 mm)	2	4	9	12	16	20	23	19	25	21	7	2	160
Average relative humidity (%)	84	81	84	85	87	90	93	92	91	89	86	84	87
Mean monthly sunshine hours	179.8	178.0	173.6	177.0	176.7	144.0	99.2	89.9	81.0	148.8	192.0	213.9	1,853.9
Mean daily sunshine hours	5.8	6.3	5.6	5.9	5.7	4.8	3.2	2.9	2.7	4.8	6.4	6.9	5.1

Source: Adapted from Deutscher wetterdienst (DWD)

3.1.5 Socio-political factors

As indicated in Figure 3.2, Uroa Quarters is one of the rural/peri-urban centres that became part of Benin City as a result of suburbanisation. Administratively, Uroa Quarters falls under Ikpoba-Okha Local Government Council, with headquarters at Idogbo. The residents are predominantly low-income earners, as well as traditional farmers. The diversity of religious beliefs supports diverse places of worship such as churches and mosques, which dot Uroa's landscape. Most importantly, close to its gateway is the shrine of the ancestors, *Ogua edion*, coupled with a few sacred groves within the neighbourhood.

The strategic location of the shrine, together with other communal ritual sites, demonstrates the significance, importance and reverence the worshippers attached to this deity. Equally, two prominent annual festivals are keenly observed and practised in this as well other Benin settlements (Ero 2003; Isekhure 2007). These are the *Eho* Festival, and the annual *Igue* Festival. *Eho* Festival (also known as *Eho ikpoleki* or *Eho-ama*, and often referred to as the new yam festival) lasts over seven days, and takes place between August and September. It started at about the fifteenth century as a process of bringing everybody together to feed their departed ancestors. The

period coincides with the scarcity of the old yam tubers of the previous season, and at about the time for the harvest of the new tubers. Therefore, it signifies and reinforces unity, peace, abundance and good health. It starts on the evening of the first day with prayers at the *Aro-erha* (altar of the ancestors/forefathers), *Aro-iye* (altar of the foremothers) or *Aro-erhinmwin* (altar of the spirits). The activity reaches its peak with the offering of kola nuts, liquor, slaughtering of livestock, and offering to the head (Iyare, 2009).

In Benin metaphysics, 'the head' embodies the seat of thinking, character, and behaviour (Nevadomsky and Rosen, 1988; Ogbonmwan, 2007). After feeding the ancestors at dawn, dances of various kinds, singing, and drumming, accompanied by calabash rattles, takes place in a procession of age grades through some major streets in the settlement. A similar pattern is repeated from the third to the sixth day, with the exchange of pounded yam (the favourite food of the Edo people), assorted/medicinal vegetable soups, and visitations, which are accompanied by a narration of the family history by the head of the household.

Igue Festival is another significant event that has caught the attention of the world. Just like the *Eho*, it also lasts over seven days but with the key difference that it marks the end of the Edo year. The end of Edo year is traditionally commemorated by exchange of Ewere leaf (leaf of victory) with neighbours, friends, and well-wishers. *Igue* brings everyone to the ancestral home (*Igiogbee*), and signifies propitiation for goodness, long life, and prosperity.

Besides the traditional belief systems, Urora is also home to other major faiths such as Christianity, and Islam. A fact common to both religions, is that some of their members are predisposed to behave (informed or influenced by specific belief systems) at significantly moderated levels of self-interest. Members of both faiths equally share a commitment to be supportive of each other, and adhere to their respective moral code and ethics. The members of the prominent two religions express their activities in elaborate rituals, and sacred stories which they use to communicate the underlying emotional commitment, and such rituals engender cooperative motivation and actions. As evident from the above examples, members of the various ethnic groups or social associations perform ritual activities in diverse forms at their formal and informal gatherings.

In Benin, present-day realities regarding administration, and social organisation can hardly be divorced from its immediate past. The Oba (the traditional king) remains at the centre, assisted by a council of chiefs (*Ekhaemwen*) who then collectively governed in matters of justice, peace, fairness, and the maintenance of order. Before the colonial era, the Oba enjoyed the responsibility of the overall authority in administration, religion, commerce, and judicial concerns. They create laws on religion, tradition, and culture, regulate festivals, and conduct rituals. There exists a hierarchy of powers, as each village/quarter/community is administered by the Chief (*Enogie*) or priest (*Ohen*) or the eldest male (*Odionwere*) with assistance from the council of elders (*Edion*), who constitute the judicial council, and adjudicate on issues affecting members in their domain. However, on matters of arson, murder, and witchcraft, the Oba wields tremendous powers, as he is the last resort.

At Urra, these features and power-structures are still at play: While the neighbouring communities, like Eyaen and Evbomodu, have *Enigies* (plural for *Enogie*) as their traditional/political heads, Urra has a traditional priest (*Ohen*). This arrangement explains the presence of the shrine close to the main entrance to the community, and also the celebration of certain feasts and festivals at certain times of the year. Traditionally, the settlement is sub-divided into three quarters, namely Urra I (*Ohen* quarters), Urra II (across the Benin-Okene-Abuja highway) and Urra III (Aideyanba Quarters). Each of these quarters has their local political head as chiefs who carry out the bidding of the *Ohen*.

With recent developments occasioned by democratic rule, and representative legislation, the dominance, influence, and reach of these religio-political actors seems to have dwindled. Nevertheless, it complements the functions of the government of the day, especially in matters of enforcing law and order. Of late, the provision of public policing, which is the exclusive preserve of the police force and the judiciary, has witnessed the increased involvement of the religious leaders. Others include ethnic and social capital networks like the professional workers' guild, members of the same kith and kin, and the women's groups. These associations meet once a week or fortnightly to ensure continuity and consistency in governance, and civil functioning.

The local tradition-agencies recruit new members once every three-years through age group initiation ceremonies. Any young man attaining the age of puberty is initiated into the *Iroghae*, whose task in the community is clearing, sweeping and the fetching of water. At the age of 25-30, the *Iroghae* steps into the shoes of the *Ighele*. The *Igheles*, carry out the bidding of the *edion*, the seniors. Whereas these traditional socio-political practices would have suffered some setbacks as a result of western influence, and religious incursions they have somehow survived such upheavals, and thus demonstrated their resilience, which is primarily rooted in rituals, and other social networks prevalent in the settlement.

These networks take the form of ethnic and religious colourations with membership drawn from same. The adherents/followership of these organisations are dispersed physically as they live at different locations but come together on the days of meetings or prayers to attend to individual/group concerns – social conflict and well-being. Through their chief priest, pastors, leaders and executives such issues are mediated and resolved, occasionally with recourse/reverence to mystical beings and powers. These activities embed the use of rituals in shaping the sentiments that inform the beliefs and can re-define their social outfits to recreate and renew their human experience.

An outstanding feature of the study area is the coming together of residents anytime they have the need to do so. For example, occasions like weddings, burials, celebrations like Christmas, Salah and festivals like *Igue* attracts all and sundry irrespective of religious affiliations and differences. This communal spirit is replicated whenever there is a constraint or incidents like power outage, flooding, indiscriminate waste disposal and settling of disputes between warring or quarrelsome residents. These activities among others like land inheritance, social miscreants and petty theft which are resolved by community leaders makes the settlement different from an average western society that do not domesticate these structures of conflict resolution among residents.

3.2 METHODOLOGY ADOPTED FOR THE STUDY

Proceeding from the ontological perspective on the differences between reality and how it influences peoples' behaviour, and the field of research centred on the

interpretivism of (neuro)phenomenology, it has become appropriate to contextualise the study within the research's 'onion'- framework, following Saunders, Lewis and Thornhill (2012), which is summarised into five layers as follows:

- Research philosophical definition (how research will be undertaken, interpretivism, studying what people think about, ideas, meaning making)
- Research approach (inductive, research question, to observation, to phenomenological theory)
- Research strategy (case study, ethnographic field observation, phenomenology)
- Research time horizon (cross-section as against longitudinal)
- Research data collection methodology (primary and secondary data)

A combination of the overall research method, and taking into account the peculiar diverse nature of the study, is presented in Figure 3.3.

3.3. DATA AND EQUIPMENT NEEDS

The study process was based on a diverse range of primary and secondary data. This section presents an overview of the data categories, their collection, and analysis to derive the study findings. The section starts with primary data, and follows with secondary data.

3.4 PRIMARY DATA SOURCES AND DATA PRESENTATION

Primary data for the study on PA, PEB and HHSMW context were gathered through five processes and tools as follows:

- Point data using Garmin (GPS)
- Questionnaire survey
- Ethnographic-based observation
- Focus group dialogues
- Phenomenologically guided interviews

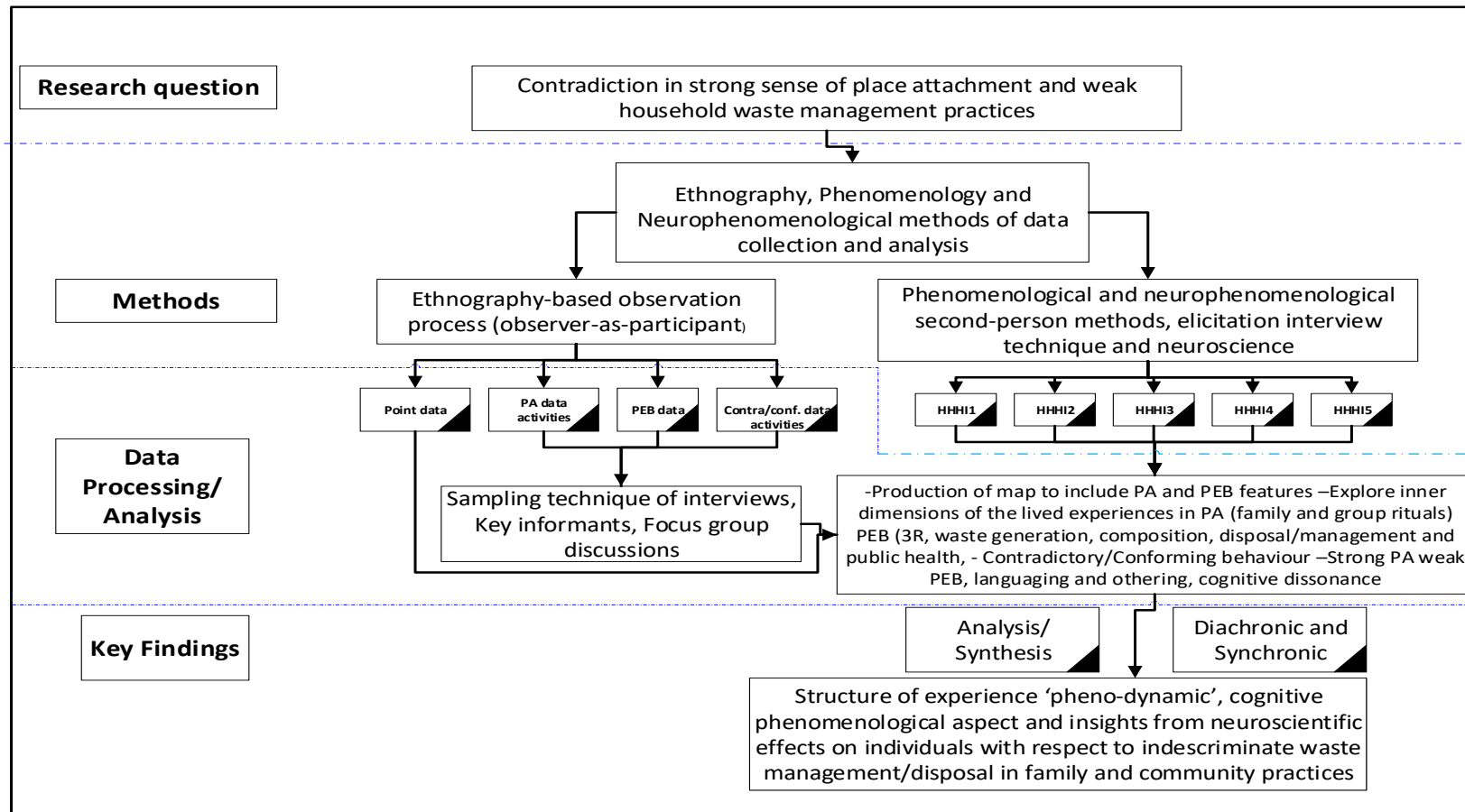


Figure 3.3: Overview of research methods and process

3.4.1. Point data using Garmin (GPS)

In the absence of an Urora base map, both at the Ministries of Housing and Urban Development as well as that of Lands and Surveys, a map was produced with the aid of a hand-held GPS Garmin (Map 62, 2013 edition). The exercise of map production started after the initial familiarisation visit through the assistance of the gatekeeper and key actor: The mapping involved point data collection by taking readings of northerly directions and easterly directions, of features on-site, from roads to moats, and essential PA attachment features like the (*Oguaedion*) elders sanctuary, the location of idols, waste disposal points and churches (see details in Appendix 3). The data gathered were later transcribed onto drawings after the necessary stages of datum and superimposition on Google Earth features to assess the accuracy, since the map is vital to the overall study (see Figure 3.4).

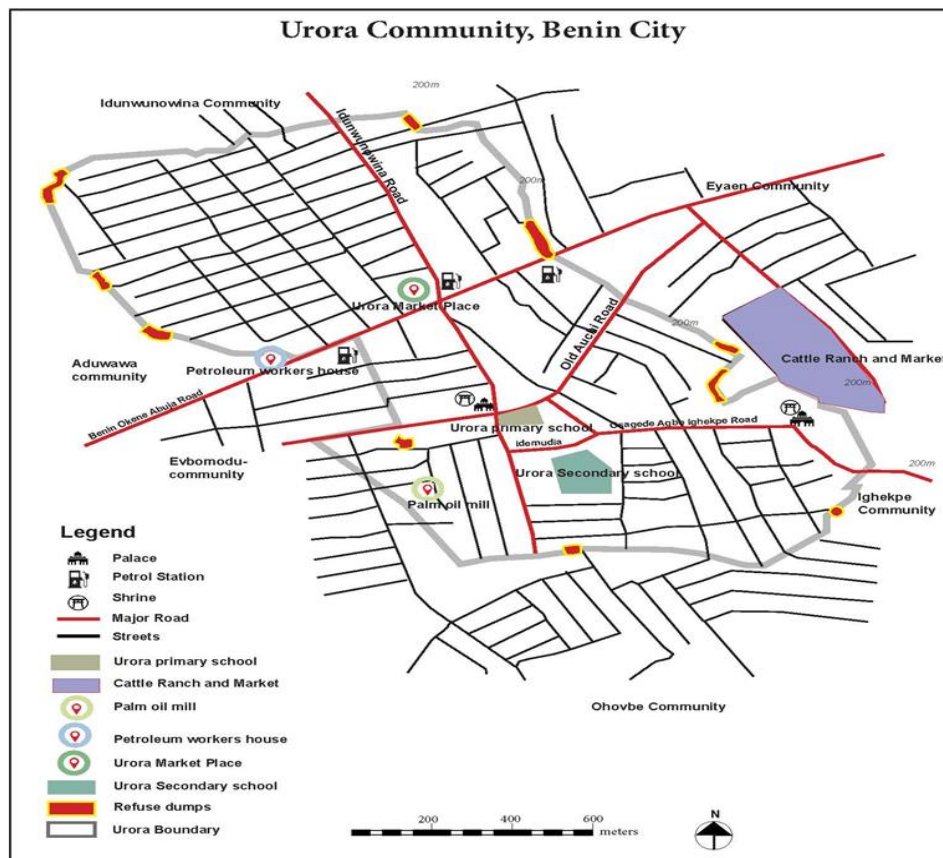


Figure 3.4: Urora Community showing PA features

3.4.2. Questionnaire survey

A questionnaire was designed (Appendix 2) to elicit information on residents' impressions of waste management, and bio-social dimensions of the residents who must have spent at least ten years in this locality. Thus a convenient snowball sampling non-random technique (Marshall, 1996; Sadler *et al.*, 2010) was employed, as respondents were predetermined by the length of their stay in the settlement. The task was made possible through the assistance of a local guide who helped in identifying residents who had lived there for not less than a decade, and were willing to give their time for the duration of the fieldwork period. Thirty residents were identified under this category, and 20 of them were recruited initially for the focus group discussions that took place later as the fieldwork progressed.

In the course of the questionnaire survey, from one street to the other, some members of households refused to answer questions even when they were knowledgeable about the issues concerning the study. Other householders referred the researcher and his guide to the head of the household who would be present later in the day as he had gone out for work. As the community is patrilineal, nearly everything receives the attention and consent of the male head of household, even issues that border on household solid waste management where the majority of the waste items emanate from kitchen activities, and processes.

3.4.3. Ethnography-based observation methods and tools

The direct observation was guided by a range of tools that allow a researcher direct access to the social behaviour of persons studied (Deacon *et al.*, 2010, p.250). Ethnographic research describes and interprets the shared and learned patterns of values, behaviours, beliefs, and language of a group sharing a common culture. With regard to this, the phenomenon of study was the contradiction or conformity between place attachment and pro-environmental behaviour with respect to the indiscriminate disposal of household solid waste (especially the absence of the principles of reduce, reuse or recycle), and its attendant consequences of pollution and health hazards. Broadly, there are four 'master roles' of observations: complete participant; participant-

as-observer, observer-as-participant, and complete or immersed observer (Angrosino, 2007; O'Reilly, 2005). Complete participant entails an approach in which the researcher participates fully in the scene without being known as a researcher.

In participant-as-observer, the researcher declares his intent from the outset after negotiating with gatekeepers or sponsors. However, the researcher does not operate as a member who is fully integrated into the “routines and subjective realities of the group” (Lindlof and Taylor, 2002:146). For observer-as-participant, participation is underpinned by the centrality of observations (Lindlof and Taylor, 2002: 149), while the complete observer is the opposite of complete participant. Participants do not recognise complete observers as researchers and do not form part of the scene (Lindlof and Taylor, 2002:150). The study has adopted the observer-as-participant approach as it relates to the observer/researcher living/co-habiting the same environment as the participants (Angrosino, 2007).

A purposeful and, therefore, non-random sampling approach was prioritised for this study, where participants were selected on the basis of being deemed suitable to address the research objectives. Random sampling involves an equal chance of selection of every member of a population, while in non-random sampling it cannot be guaranteed that every unit of a population has an equal selection chance (Deacon *et al.*, 2010: 44). Consequently, this study employed the services of a key informant/actor/gatekeeper to identify households/families that satisfied the following conditions, and also assisted in showing the researcher the boundaries of the community, which made the production of Figure 3.3 possible.

Given this background, the study involved a brief survey of 30 participants to get to know their attitudes to waste management (see Appendix 2), 20 participants from the survey group were selected for focus group discussions (see Appendix 5), and a further five heads of households were shadowed (see Appendix 6), based on the following sub-question stages (see Table 3.2):

- PA-related sub-questions: ethnographic tools, data analysis, and findings
- PEB-related sub-questions, tools, data analysis, and findings

- Contradictory or conforming sub-questions ethnographic tools, data analysis, and findings

PA related sub-questions, ethnographic tools, data analysis, and findings

The research sub-questions as presented in Table 3.3 show three sets of questions which are PA related. The first two are on rituals while the last one is on waste condition. The first two issues which are quite fundamental to the study were tackled with the use of data tools such as desktop sources and formal/informal interviews conducted by the researcher when a particular ceremony of interest is taking place. For example, during wedding ceremonies, on the sidelines, informal questions were directed to the key actor/gate keeper. Other sources includes when the researcher attends occasions of oral histories, folktales, especially those narrated by an articulate and culturally sensitive key actor. This key actor/informant who is respected culturally, and one of the organisers of the cultural/traditional festivals, personally played a pivotal role in linking the fieldworker/researcher with the community.

The services of the key informant were required during ceremonies (marriage, naming, death and burial), religious and cultural feasts and festivals (as understood from Marshall, 1996). In all of the events mentioned the fieldworker must possess the necessary equipment in addition to his five senses. Table 3.4 shows the summary of the PA sub-questions, along with the related research tools to address the data needed as understood from Salamone (2004), and Bell (1992). The analysis commenced with the sequence of reading through the notes of the description; followed by the classification of the notes, and finally the notes made into themes as it emerged from the research sub-questions. To achieve these objectives the researcher considered the following:

- In addition to the five senses, the researcher complemented data collection with field notes, camera and video recordings, voice recorders, unhindered access to individual and community platforms like weddings, burials, forums for the settlement of disputes between neighbours, and naming ceremonies.
- The choice of where the data tools were used was decided by the researcher, based on the context as an on-going affair, and staying/living among the residents, giving the researcher ample opportunity to get a feel of the goings-

Table 3.3: Overview on application of ethnographic-based observation/phenomenological methods to research questions

Sub-questions	Ethnographic/phenomenological primary data tools applied	Analysis and sub-findings
<p>PA-Related sub-questions (to be addressed in detail in Chapter 4)</p> <p>□ What are the commonly shared rituals at family and community levels in the settlement?</p>	<p>Desktop materials and formal/informal interviews with knowledgeable personalities with oral histories/folktales especially the culturally sensitive and articulate gatekeeper/key actor/key informant. This action is followed by respect for the culture of study location and personality to be interviewed. The researcher attended with notepads, diary and voice recorder.</p>	<p>I transcribed information/data later in the day of interview/fieldwork. Think, select and isolate, listen and observe as the researcher identifies and compare similar patterns of rituals. The key event provides a mirror with which to view a culture.</p>
<p>□ What is the significance of these rituals in enhancing bonding and sense of belonging in the settlement, in Uroa and Benin City in general?</p>	<p>Invitation to ceremonies (marriages, burial, naming, age-group) feasts, festivals with field notes, diaries, voice/video recordings and photographs assisted by the gatekeeper where and when the need arises. I assumed the status of observer-as-participant during the occasion or later have an interview with the knowledgeable key actor on the importance of these ceremonies to sense of belonging (see Appendix 6)</p>	<p>I transcribed information/data later in the week of interview/fieldwork. Get cluster patterns within the text, record certain words and phrases to determine their frequencies in the text. The significance is determined by their frequency and context.</p>
<p>□ What is the level of individual and collective awareness of waste-condition and how does this knowledge influence the sense of belonging?</p>	<p>Purposeful sampling of thirty heads of households at the initial stage to provide of perception of the “waste condition” (Appendix 3), focus group discussions (Appendix 5) and later phenomenological guided open-ended questions (structural and attribute) SSDIs (Appendix 4 and 6). Evidence of waste-condition in people’s habitation and narratives as they socialise at different levels (household, clan, neighbourhood, settlement.</p>	<p>I transcribed information/data same day of interview/fieldwork. For the focus group discussions (comments into excel spreadsheet for compilation), analysis and synthesis to form themes derived from the participants’ contributions. For the phenomenological interviews from a cluster of meanings to interpreted descriptions to convey an overall impression.</p>

Sub-questions	Ethnographic/phenomenological primary data tools applied	Analysis and sub-findings
		There is available evidence of the existence of religious, cultural and social ceremonies and festivals. The people/residents derive meaning and value in participating actively in such occasions.
<p>PEB-Waste-condition sub-questions (is addressed in detail in Chapter 5)</p> <p>□ What are the individual and household-level waste disposal practices evident in the settlements?</p> <p>□ What are the different compositions of waste at</p>	Observation with field notes and diaries, availability or non-availability of refuse bins, presence/absence of municipal waste management, photographs, plotting on map/plan, shadowing of five prospective polluter/actors from generation to disposal to know when, how and with what (see Appendix 4).	Visual representations, production of maps/plans that incorporate waste dumpsites and highlights streets riddled with heaps of refuse. It crystallises networks, images, and understandings and indicates new areas to explore.
	The five households of varying income/size/religion and education were observed and shadowed for one week each in the form of waste composition and kg/cap/day (Appendix 7c) from generation to disposal points. Before disposal, they were separated and weighed	Visual representation as gleaned from Appendix 7c, at the same time points to unexplored dimensions. Transcribed information/data same day of interview/fieldwork.

Sub-questions	Ethnographic/phenomenological primary data tools applied	Analysis and sub-findings
<p>generation and different disposal points?</p> <p>□ What is the awareness level of “waste condition” impacts on public health and infrastructural facilities/services in the</p>	<p>Observation, field notes and photographs of heaps of refuse on the streets and those on watercourses and channels and the attendant effects of flies, rodents, and other vermin. Interviews were conducted on the consequences of the presence of the heaps of refuse on the health of residents/participants.</p>	<p>Transcribed information/data same day of interview/fieldwork.</p>
<p>settlement?</p>	<p>Evidence or lack-of-it on municipal waste collection and/or other disposal methods- burning, burying, scavenging by animals, distributed by the wind</p>	<p>The settlement has been neglected by the municipality in the waste collection and disposal. The residents/participants attempt to address the problem have not been successful. Since they have a mutual fixation, they live and wallow in filth.</p>
<p>Contradiction/conforming sub-questions (is addressed in detail in Chapter 6)</p> <p>□What is the current pattern of PA versus waste-condition (contradiction - strong place attachment and weak/poor waste management/disposal practices Or conforming - strong place attachment</p>	<p>Observation, field notes photograph, focus group discussions, key informant interview and heads of households’ phenomenological guided interview. Given the phenomenological interview, a dialogue emanated leading us to the meaning of the essence that extraneous forces coupled with lack of knowledge is responsible for apathy in the PA-PEB discourse.</p>	<p>On the social level, PA appears strong as ceremonies like weddings, burials, church activities and meetings are hugely attended. However, the socially strong PA have not been translated to a strong PEB that facilitates waste management processes. The reasons for this contradiction are the influx of persons from other cultures due over-urbanization and population explosion. The resident-indigenes</p>

Sub-questions	Ethnographic/phenomenological primary data tools applied	Analysis and sub-findings
<p>and strong waste management disposal practices)?</p> <p>□ What could be the underlying drivers which sustain/drive this “contradictory” OR “conforming” interaction in PA versus waste-condition?</p>		<p>have been out-numbered, and they no longer speak with one voice.</p>
	<p>Field notes, observations of lack of provision of waste bins, seasonal roads, lack of prosecution of defaulters of waste management edicts</p>	<p>Degraded environment correlates irresponsible behaviour as nobody seems to care. It then follows that since birds of the same feather flock together the settlement is tending to PD (place detachment) rather than PA (place attachment)</p>
<p>□ How could the underlying drivers be modified for enhanced waste management/disposal practices and how could this impact on PA?</p>	<p>Key informant interviews, focus group discussion</p>	<p>Public enlightenment of the effects of indiscriminate waste disposal, stakeholders to meet an re-awaken the age-long structures of intra-group solidarity, cooperation and empathy</p>

Sub-questions	Ethnographic/phenomenological primary data tools applied	Analysis and sub-findings
<input type="checkbox"/> Overall research question (will be addressed in detail in Chapter 6). Consolidation of sub-findings towards addressing overall research question and objectives <input type="checkbox"/> What is the current pattern of PA versus waste condition (strong place attachment and weak/poor waste management/disposal practice) OR conforming (strong place attachment and strong waste management/disposal practices)? We apply focus group discussion as the key data tools after that analysis <ul style="list-style-type: none"> • What could be the underlying drivers sustaining this “contradictory” OR “conforming” interaction in PA versus waste-condition? • How could the underlying drivers be modified towards enhanced waste management/disposal practices and how would this impact on PA? <input type="checkbox"/> Consolidating conclusions and recommendations of the study (covered in detail in Chapter 7)		<p>That the study has shown the existence of cultural, religious and economic drivers that have perpetuated the existence of the contradiction.</p>

on in the settlement. For example, the morning, afternoon and evening periods, how PA and PEB activities are engaged in, informal discussions with the locals at eateries and pub-houses, on issues such as relationships, taboos, and what had necessitated the related behaviours, and practices.

- The personalities engaged are grouped into the following sub-categories; heads of households (including both large and small-sized families), heads of different religious persuasions (Christians, Moslems, ATR) as understood from Bell (1992), and Salamone (2004).
- Officials and organisers of the various feasts, ceremonies and festivals, opinion and community leaders.
- Waste management officials and local personalities who would have been active in personal and community rituals, as understood from Bell (1992), and Salamone (2004).

The study interviewed these personalities who were between the ages of 18 and 70 years to understand their perspectives, lived experiences in PA, and gain insight on waste disposal practices within their environment (Lindlof and Taylor, 2002: 170). Through these engagements, some key informants who met the requirements as understood from Marshall (1996), were discovered while others with a strong drive for discussing and championing public issues were invited to the focus group discussions. For key informants, the interview questions covered three subject areas; PA, PEB/waste, and conforming/contradictory dimensions as reflected in Appendix 1. The engagement with these participants informed the researcher on some key elements particular to the settlement. Such particularities in the realm of PA include the cohesion, solidarity, and care for one another; for PEB the living habits, which is contrary to their belief system (they profess cleanliness as next to godliness, yet their surroundings are filthy). Three key informants were comprehensively interviewed, while many others were informally engaged in the course of the fieldwork.

A crucial requirement of the process for the key informant interview (Appendix 1), was to let the interviewee be aware of the subject about to be discussed. This was guided

by the PIS (participant information sheet), followed by the consent form informing them about their rights, and privileges.

PEB related sub-questions: Ethnographic tools, data analysis, and findings

The data and analysis of this section are taken up in Chapter 5 of the dissertation. Table 3.4 shows three sets of PEB waste related sub-questions, with the details further elaborated in Table 3.5. The first and second sub-questions revealed the solid waste disposal practices, and the composition of such waste through the cooperation of five active actors/polluters who were shadowed for five days. The days were Monday to Friday between the hours of 6:30 a.m.-8:30 a.m., and 5:00 p.m.-6:30 p.m. The details of PEB related sub-questions, the composition of the solid waste, and its quantity was measured to establish kg per capita, as shown in Appendix 7c, while Appendices 7a and 7b were applied for deriving benchmark indicators to assess, and address PEB research sub-questions 1 to 3. For example, Appendix 7c incorporated bio-waste (putrescible and non-putrescible), paper, glass, plastic, metals, household waste hazardous waste (medicines, batteries, pesticides, light bulbs, paints, and coatings), pattern of delivery to the dumpsite, levels of degradation, and smell. Putrescible waste is a type of bio-waste that is decomposed by micro-organisms within a short period of time, and releases obnoxious odours into the atmosphere. Examples are tomatoes, or soup. If it is not warmed-up frequently, becomes sour, and emits a foul smell.

Contradictory or conforming sub-questions: Ethnographic tools, and findings

There were three research sub-questions in this category, which were addressed in the focus group discussions of 18 participants drawn from the initial 30 household-members, opinion leaders, municipal waste officials, community/spiritual elders, and leaders. The guide to the focus group discussions can be seen in Appendix 5, as derived from the overview presented in Table 3.6. On data tools and analysis, the study recorded and captured events of interest and concern as they occurred. Furthermore, as understood from Angrosino (2007), the following are important in taking down note

Table 3.4: Overview on interview guide/questions and research tools on PA sub-questions

PA-Sub-questions	Ethnographic observation guide/questions schedule	Focus-Group/Workshop Guide Schedule	Key Informant/actor	Household interview	Desktop publications
1 What are the commonly shared rituals at family and community levels in the settlement?	<p>i. What are the common ways to which the family and community enjoy some level of respect and identity?</p> <p>ii Observe, identify and explore activities that bring people together; feasts, festivals, and ceremonies. Evidence of such acts,</p>	<p>-To be discussed at the workshop and get mean of respondents on shared rituals.</p> <p>-What are the personal rituals?</p> <p>-What are group rituals?</p> <p>-What are the differences between them?</p> <p>-Which is the most popular and why?</p>	<p>What are individual and community rituals for which the individual and the community respect and cherish better? Which of these do the individual and group enjoy so well?</p>	<p>-Evidence of commonly shared rituals at family and community levels (could be a picture taken from such occasions).</p> <p>-Describe a particular ritual of your choice?</p> <p>-What benefits are derivable from this opportunity?</p>	<p>-Literature from government publications, circulars, and written texts.</p>
2 What is the significance of these rituals in enhancing bonding and sense of belonging in Urora and Benin City in general?	<p>i. Observe and explore at occasions where activities like ceremonies and rituals take place.</p> <p>ii What importance do they attach to such ceremonies?</p> <p>lii What is the effect/influence on their lives?</p>	<p>- How often do they engage in ritual activities?</p> <p>-What happens or the effect of not engaging in them?</p> <p>-The effect on the community and the society at large.</p>	<p>-What is the importance of engaging in the ritual activities? -Could there be myth/belief associated with them?</p>	<p>-How important are these activities?</p> <p>-Why engage in them? -If not what happens?</p> <p>-With the aid of a picture taken in an earlier event relive/describe you are your experience?</p>	<p>- Information on rituals and their importance/significance</p>

PA-Sub-questions	Ethnographic observation guide/questions schedule	Focus-Group/Workshop Guide Schedule	Key Informant/actor	Household interview	Desktop publications
3 What is the level of individual and collective awareness of waste-condition and how does this awareness influence the sense of belonging?	i Purposive sampling with the question; what is your impression about waste disposal? ii Observation on the awareness and measures taken to curtail the waste menace iii Are they comfortable (one learn through observation)	- How comfortably could they be living daily with uncontrolled waste? - Does it affect them adversely or it is a nagging problem in the background? - Describe your experience with strong stench/offensive odour and how does it make them feel?	-What is your impression on solid waste? -What is your experience with it? -Could people have relocated on account of the 'waste condition'? -Can you describe what happened?	-Are you comfortable living in the area? -How comfortable are you? -Would you be proud enough to invite your friend from afar to spend some days with you?	-To get newspaper reports or government circulars or any material on the internet on the issue

Table 3.5: Overview on interview guide/questions and research tools on PEB/waste sub-questions

PEB/Waste sub-questions	Ethnographic observation guide/questions schedule	Focus-Group/Workshop guide schedule	Key informant/actor	Household interview	Desktop publications
1. What are the individual and household-level waste disposal practices evident in the settlement?	-Observation, a reference to Appendix 7A and B. -With field notes, and pictures	-Discussions on waste disposal practices engaged by participants.'	-How do the residents dispose of their solid waste?	-What type of waste do you generate? -Shadowing over five days	-Information on the area from other sources
2. What are the different compositions of waste at generation and different disposal points by households/families?	-Fieldwork, shadowing of polluter/actor from generation to disposal points. -The use of format in Appendix 7C	-What kind of a waste do they generate more than others and why? -Where and how do they dispose of the waste? -Have you been involved in reduce, reuse, recycling or composting and initiatives?	-What types of waste do the residents generate more and why? -How is the waste disposed of?	-Shadowing over five days and guided by Appendix 7C -interview on household solid waste management habits	-Information from municipal officials on solid waste
3. What is the awareness levels of "waste condition" impacts on public health and infrastructure facilities/services in the settlement?	-Observation, field notes, pictures and reference to Appendix 7A and B, flooding and foul smell	-Have there been cases of an epidemic like cholera, typhoid fever, malaria fever, bacillary dysenteries, diarrhoea?	-Could there have been instances of epidemic attributed to indiscriminate waste disposal.'	-Describe your experience with any public health issue like cholera, typhoid fever, bacillary dysenteries, or diarrhoea?	Information on the area from other sources

Table 3.6: Overview on interview guide/questions and research tools on conforming sub-questions

Contradictory/conforming sub-questions	Ethnographic observation guide/questions schedule	Focus-Group/Workshop Guide Schedule	Key Informant/actor	Household interview	Desktop publications
1. What is the current pattern of PA versus waste-condition (contradiction -strong place attachment and weak/poor waste management/disposal practices OR conforming -strong place attachment and strong waste management disposal practices)?	<ul style="list-style-type: none"> -Observation at community ceremonial platforms with field notes and informal interviews on contradictory and conforming practices. -Pictures/video recordings 	<ul style="list-style-type: none"> -What motivates the co-existence of strong place attachment with weak household solid waste management practices? -If some participants see the problem differently then what sustains this contradictory/conforming conditions? 	<ul style="list-style-type: none"> -What are the factors/conditions that warrant the co-existence of conforming and contradictory PA and PEB? -Describe your experience with both conditions? 	<ul style="list-style-type: none"> -Describe the relationship between the ritual/ceremony you like best and the indiscriminate waste disposal outlook? -Does the 'waste condition' favour the ceremony? 	Information on the subject from other sources
2. What could be the underlying drivers which sustain/drives this "contradictory" OR "conforming" interaction in PA versus waste-condition?	<ul style="list-style-type: none"> - Informal interviews on what sustains contradictory and conforming practices. -Could there be socio-cultural and or 	<ul style="list-style-type: none"> -What are the motivating factors, could it be socio-cultural, economic or religious or the factors? -Could some of the participants be benefiting 	<ul style="list-style-type: none"> -From your experience what factors facilitate conforming conditions? -What factors favour 	<ul style="list-style-type: none"> -What factors encourages or discourages strong PA and weak PEB or strong PA and strong PEB? 	-do-

	economic or religious factors	<p>from the prevailing circumstances?</p> <p>-Is it possible that some of them are involved in waste management practices that include reduce, reuse, recycling and composting?</p>	contradictory conditions?	-What role would religious beliefs, cultural, social and economic factors play in this relationship?	
3	<p>How could the underlying drivers be modified towards enhanced waste-management/disposal practices and how could this impact on PA?</p>	<p>-How have they been coping with this conforming/contradictory phase?</p> <p>-</p>	<p>-What sustains the contradictory/conforming situations?</p> <p>- Do your belief systems permit or allow for the contradictory/conforming situations?</p> <p>-Given the factors/drivers, how do we reach an understanding to guide for a better waste management/disposal initiative?</p>	<p>-How can an understanding of the two opposing conditions be reached</p>	<p>-Given the factors, what drivers could be modified to achieve a better understanding of an enduring waste management initiative?</p>
					-do-

- Record as many verbatim exchanges as possible especially with participants on the prevailing waste conditions, the contradictory and conforming factors, and indicators.
- Use pseudonyms to identify participants to preserve anonymity and confidentiality. This factor was considered during the interview, the focus group one-on-one interviews, and general community functions like feasts, festivals, and ceremonies.

3.4.4. Focus group Dialogues

As part of the data collection tool/source, the focus group dialogues for this study came up in two-stages. In the course of questionnaire survey/purposeful interview, coupled with the assistance of the key informant/gatekeeper some participants, based on their contributions, were invited to the discussion at a central location convenient to all, and on a Saturday morning. For this reason, the Akengbuda and Urora primary schools were chosen, and permission to use the premises was obtained from the State Universal Basic Education Board (SUBEB) through the Ikpoba-Okha local education authority. The turnout for this event was quite encouraging but not sufficient to meet the required number of 20. Besides, most of the local resident-indigenous participants were absent, and the few that came were late for the event owing to an emergency engagement which came up after the date set aside for this exercise had been communicated to participants. For this reason, another date was fixed for this group of interviewees which took place at the palace of the traditional priest.

The two-leg focus group discussions took on the following format: After the necessary formalities (registration with a pseudonym name tag, greetings, acknowledgements, ground rules and sub-group composition and size, an overview of the topic), the programme began by the researcher asking the participants to introduce themselves to make them comfortable and conversant with the theme of the discussion. They were then asked how they would value their home and environment.

The next stage which was the exploratory question laced with prompts and probes of 6-8 participants, owing to the 14 participants we had, it was possible to form two groups, each headed by a facilitator (ex-students of the researcher recruited for this

purpose) to use the format in Appendices 5 and 5a as a guide. Towards the end, an exit question was introduced to confirm that nothing had been left out in the discussions. A summary of the contributions of the two groups on the three broad areas of PA, PEB, as well as contradictory and conforming domains sufficient to capture the salient points of the contributors, is presented in Appendix 5b. The same format of principles and protocols were repeated at the palace of the chief priest, the only difference being that there was only one group. At the close of discussions, the participants were served with snacks.

3.4.5. Phenomenologically guided interview

It is customary that a phenomenological-guided interview start with the process called *epoche*. Through *epoche*, the researcher is expected to refrain from judgement, to abstain and bracket off the everyday ordinary way of perceiving things (Moustakas 1994; Creswell 2013). The *epoche* process is a contrast to what Husserl refer to as the 'natural attitude' where everything is held judgementally, what is perceived in nature is presupposed to be actually present and stays there as perceived. It is through this process the researcher state his biases but cannot completely do so because the experiencing person the 'I' is not set aside. Besides, it is difficult to suppress voices (internal and external) and to only be aware of what appear to you (Moustakas 1994).

Given the preceding, the researcher have to set aside his knowledge, prejudice and misconceptions about rituals, PA, PEB, solid waste generation, disposal/management practices and welcome the perspectives of research participants. For example, my opinion about ritual before the study was negative in the sense that anything fetish and has do with nocturnal meetings/associations and with the occult. Concerning PA, my first impression about the residents was that of filthy persons who lack basic principles of hygiene and would stop at nothing but generate refuse which they dispose indiscriminately. These activities generate odours and smells which are repugnant to decent living conditions (degraded environment). However, through the process of *epoche*, these 'natural attitude' were replaced/bracketed before starting the interview such that these previously held opinions would not influence its conduct and analysis rather have a greater openness to the phenomenon under investigation.

Five heads of households of different income and ethnic groups were interviewed at their homes after shadowing their homes-process for five days (Monday–Friday) between the hours 6:30-8:30 a.m. and 5:00-6:30 p.m. to observe their waste disposal/management behaviour, from generation to dumpsites. The aspect of shadowing, which was a part of participant-observation, provided complementary forms of experiential materials to those selected from the face-to-face/SSDI/conversations. During this period, the waste they generated were separated into plastic bags provided for them by the researcher, and weighed in categories of bio-degradable, paper, plastic, metals (Appendix 7c). The researcher used the other two days of the week (Saturdays and Sundays), which were agreed to be convenient for the interviewees, for conducting the semi-structured in-depth interviews (SSDIs) for this same group of participants whose religions, family size, and different income groups were purposefully selected, guided by the questions presented in Boxes 1-5, and Appendices 6a and b.

In the course of shadowing the five HHs, given the length of stay in the settlement, and consistent with the openness of a phenomenological study, the researcher observed two additional issues relevant to the study. The first one was the language, where derogatory words were used in reference to waste handlers, and the second one was that residents' ways of life were contrary to their belief systems. The two concerns were explored further, as reflected in Sections 5.6 and 6.5, and the interview guide indicated in Appendix 6c. The researcher opted for the second-person perspective of data collection because the first-person method is fraught with problems, ranging from unstable attention to lack of awareness of the dimensions, and level of detail to be observed. The participants had also not been trained in the phenomenological approaches. Having equipped myself with the necessary literature, I adopted an 'attitude' for reporting first-person data, and also assumed insights from emphatic stands for investigating the lived experience of the interviewees as understood from Olivares *et al.*, (2015).

Moreover, the following measures were used to overcome the difficulties identified. Stabilising attention where necessary, the researcher stated the context and conditions of the interview to the interviewees as contained in the PIS and consent forms, which in summary is to gather a description of how the interviewees experience

(dimensions of lived experiences as shown in Figures 3.5, 3.6 and 2.2) the indiscriminate disposal of solid waste at living quarters, and at street corners, among other places.

The stabilisation of attention also included the writer asking the heads of households to put aside whatever their burden were, and clear an inner space so as to make room for facilitating a relaxed relationship with the experience that was being explored. Other measures for increasing focus, as learnt from Petitmegin (2006), included asking a question that brings the interviewees back anytime s/he happens to digress. The researcher reformulated graphic elements concerning the solid waste experience each time the researcher noticed a digression. The interviewees were informed of these tips, listed/addressed here before our interview proper started.

In the course of the interview, prior value judgements were eschewed from an external perspective (bracketed), but instead the focus was on the meaning of the situation as the research participants' experience gives it. Subsequent to this prior preparation, attention moved from 'what' to 'how', which is the Husserlian conversion for directing attention from the physical presence of solid waste, and accompanying processes towards the act of perceiving solid waste. In other words, from the act of remembering solid waste objects which appear in our consciousness (*noetic* dimensions), towards the subjective modes of appearance of solid waste (*noematic* dimensions) so that, in accordance with Petitmegin (2006), we move from direct consciousness to reflective consciousness.

During the interview, we (interviewer and interviewees) transit from 'What' to 'How', and from 'How' to 'Why', given the encounter with solid waste, the necessary features to relive the lived experience (past) as if it is present (see Figure 3.5). For example, from what to how, I was interested in the appearance/perception of solid waste by exploring the unpleasant/irritating effects through the eyes as the brain sends messages to make us conscious of the episode. In this regard, the method of investigating the structure of experience is one of phenomenological reduction.

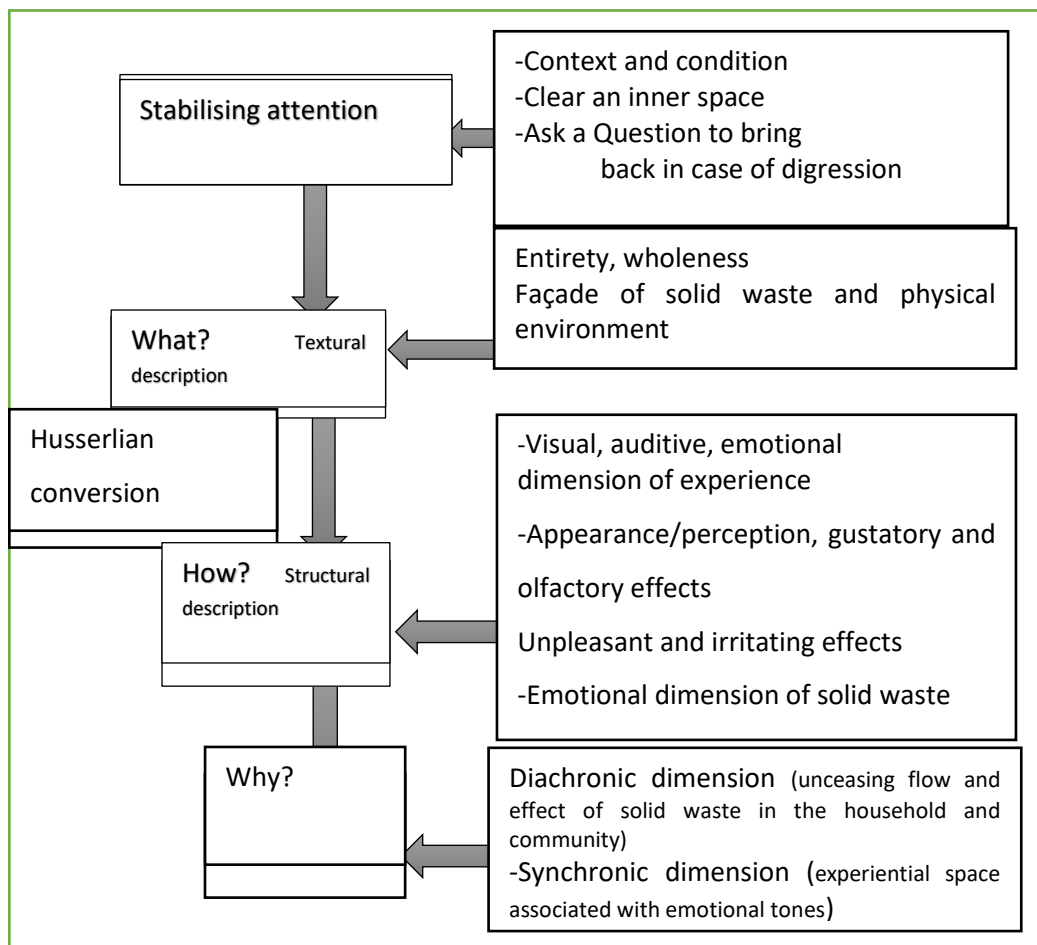


Figure 3.5: Phenomenological principles employed in the interview process

Source: Adapted from Petitmegin (2006) Olivares *et al.*, (2015)

The 'what' to 'how' equally included the emotional dimensions connected to solid waste, the effects and the impressions the stench create for the inhabitants, and the physical environment. The visual, olfactory and gustatory perceptions were also engaged. In the journey of 'how' to 'why' the researcher followed the interviewee towards a concrete evocation and description of their inner dialogue of the solid waste experience in two ways; diachronic dimension (solid waste as an unabated flow and described in succession). Moreover, the synchronic and non-temporal dimension addressed the configuration of the interviewees' experiential space, associated with emotional tones, type of attention mobilised, times when occasional pungent smell fills the air as the auditory, olfactory, gustatory, and somatosensory perceptions were

engaged, and as moderated by weather conditions. The analysis took the form of discerning patterns as I collected pieces of information, comparing and describing, looking again, and repeatedly describing concerning textural qualities. The process of 'why' to 'how' was made possible through the use of imaginative variations which enabled the researcher to derive structural themes from textural descriptions obtained through PhR.

In the course of the interview, I looked for clues in the verbal, para-verbal and non-verbal domains. Verbal refers to what is said clearly and eloquently, para-verbal relates to patterns such as the slowing down of the word flow, and non-verbal pertains to the shifting and re-focussing of the eyes, the dropping of eye contact with the interviewer, and often it is as if looking into blank space. Throughout the period, prompts/clues for the interviewer were based on observation of the gestures accompanying the spoken words. These co-verbal episodes were noted in the researcher's field notes for each head of household interview column. Consequently, since my approach focuses more on the description of the experiences of participants/interviewees (in which everything is best perceived freshly as if for the first time), it qualifies as transcendental or psychological phenomenology (Moustakas, 1994). The task involved looking for contrasting themes/features at the same time to ultimately create a theme with patterned regularities, as understood from Creswell (2013).

In course of the phenomenological process, results/experiences were recorded in sequence, especially into hours, and even minutes. Accordingly, the study employed field notes, voice/video recorders, and photographs. As the analysis progressed from textural descriptions to structural themes, the *epoche*/imaginative variation of the phenomenological process using the second-person perspective of the data collection, the researcher followed the principle as understood from Moustakas (1994), see Figure 3.6.

Given the data arising from the research questions, significant statements, sentences or quotes that provide an understanding of how interviewees experienced the effects of solid waste, is horizontalisation. Next it is followed by a cluster of meaning as presented in Figure 3.6.

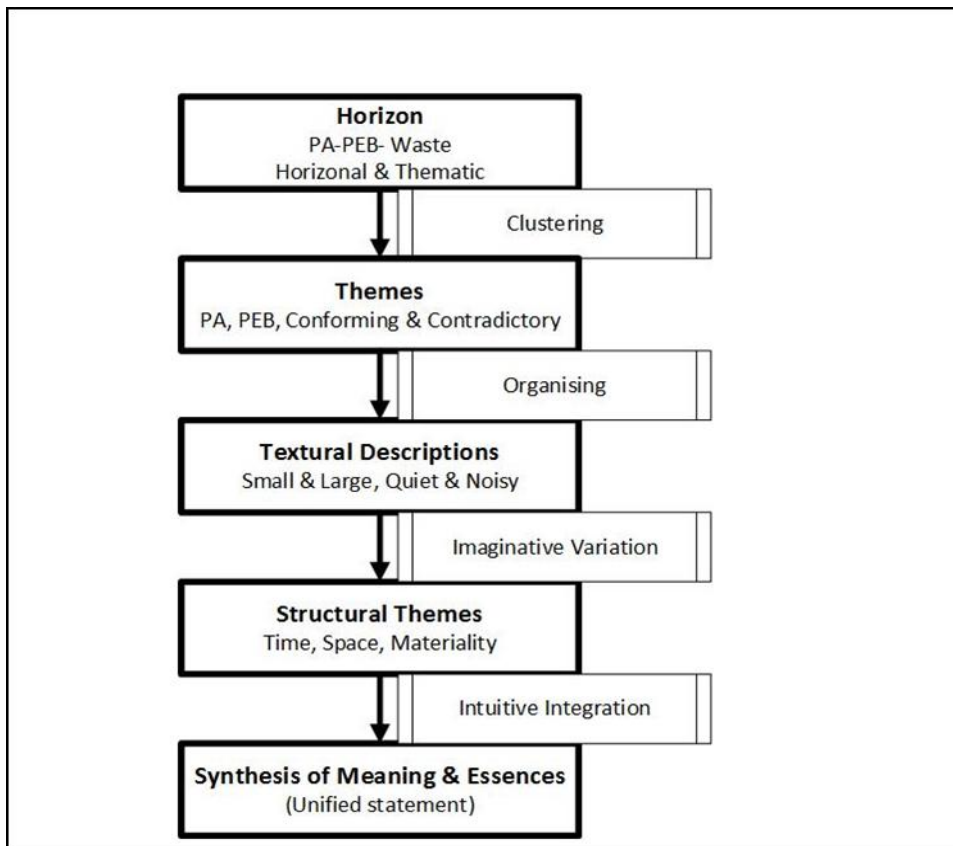


Figure 3.6: Phenomenological perspective of PA, PEB & MW experiential context.
Source: Adapted from Petitmengin (2006) Moustakas (1994)

3.5. SECONDARY DATA SOURCES

Secondary data sources included the following; desktop materials, community newspapers, films and video on the settlement and Benin City. Desktop materials include print and electronic media from the library, and online materials on PA, PEB, rituals, waste management, phenomenology, neurophenomenology, and neuroscience. From this source, the researcher got materials that shed light on the subject areas as seen from Chapters 1 and 2 of this study. Further the knowledge derived from this source laid the foundation from which other thoughts took root; for example, the relationship between PA and PEB, the use of ethnographic methods and phenomenology, both as a research method and theory, as seen in chapters 1 to 3. By so doing, the research focus attracted issues in these areas, and such thoughts

and knowledge were used to inform and influence opinions in search of a better understanding of the issues at stake.

Community newspapers, films and videos from print and electronic media on the study area and Benin City, in general, were another aspect of the secondary data collection. From these sources, I was able to complement the information from the primary data as the secondary sources had a history of reliability, and consistency of news reportage. Some happenings in the settlement, which were not covered in the course of the fieldwork, were given their necessary space here. For example, the activities of the Oba of Benin, community news, community development associations (CDAs), films, videos and documentaries on the peoples' way of life and recent happenings, were some information that caught the researcher's attention. These data assisted the researcher in discussing and analysing events as seen in Chapter 4 of the study.

Secondary data on climate were used to inform the research on possible weather impacts on the exposed solid waste substances, where high temperatures and high humidity play roles that would negatively affect the health, and safety of the residents.

3.6. DATA ANALYSIS TECHNIQUES AND PRESENTATION

Point data collected for the area using a hand-held global positioning GPS, Garmin Map 62 (2013 version), was drawn to scale and cross-referenced with a Google Earth Map with specific reference and datum. The 1997 and 2017 satellite imagery were further referenced and superimposed, and revealed the transition of PA, PEB features over time. Other primary data forms (the focus group discussions and key informant interviews) were analysed using thematic content analysis, where verbal and recorded data were categorised based on the dimensions of PA, PEB, conforming and contradictory themes. The characterisation of PA, PEB, conforming and contradictory dimensions were informed from the research sub-questions, which guided the process of the fieldwork and then applied towards classification, summarisation, and tabulation.

- Phenomenologically guided interviews followed the same pattern of categorisation (but participants were heads of households), and the analysis followed the usual process (see Figures 3.5 and 3.6). The reading of each transcript was carried out with the intention of having a clearer background

understanding/integrity of what the transcript indicated. This first step facilitated the deducing of significant statements/quotes.

- Re-reading the transcript to identify changes in meaning, and mark these as meaning units. Statements were combined to conceptualise themes (clusters of meanings), followed by transforming the language of this particular purpose unit into an expression of an essence (transformed meaning-unit). This essence is used in writing the descriptions of inferred experiences of participants' textural description.
- Comparing themes across transcripts, the transformed meaning-units inform of and identifying changes in meanings, these are recognised as meaning-units based on the ones that cohered. This was then consolidated into a description of how participants experienced the phenomenon regarding conditions, context or situations (structural description).
- Writing an interpreted description of the phenomenon that synthesises all the various segments in one comprehensive format, to be supplemented by elaboration on its meanings, and possible variations. This description constitutes a combination of textural and structural descriptions, to convey an overall impression. Since the ultimate goal of the phenomenological analysis is the meaning of experience, the parts were sensitively ordered with that goal in mind.

3.6.1. Ethical Considerations

The study involved ethnographic-based observation studies of solid waste habits of participants/households, both within their residences as well as at their points of disposal of the solid waste. The study also includes ascertaining the solid waste attributes and the familiarisation with the site to update maps/plans, taking off sound/photo/voice/videoing, and the keeping of diaries of interviews with a cross-section of the inhabitants/discussions. Given this background, ethical considerations for the study were guided by the non-medical ethics criteria of the University of the Witwatersrand.

Consequent upon ethics-clearance for the study (Appendix 9), the movement from one location to another in connection with the collection of data for points data readings, the location of unauthorised refuse dumps, even the taking of pictures of incidence of open-air burning of refuse were with the consent and approval of responsible community leaders, and the respective participants. Consent and approval were solicited for the key informant interviews, the questionnaire survey, focus group discussions, and the one-on-one interviews with heads of households. Consent was sought and granted for a photograph on place attachment features like the *Oguaedion* (elders' sanctuary), *Aroebiemwen*, *Ogbiro* (the sacred tree), meetings of the settlement of disputes, burial ceremonies, churches, and other landmark features. Consent and approval extended to the recording of interviews at various centres.

CHAPTER FOUR

PLACE ATTACHMENT FEATURES AND THE AWARENESS OF WASTE CONDITION

4.1 INTRODUCTION

Place attachment (PA) embodies psychodynamic terms, which also entail experiential and theoretical components. These include holding, hearing, feeling, perceiving, believing, and thoughts as some of the factors that mediate PA. Further, PA is shaped by what the residents can do and what they are capable of doing, their innate and pragmatic possibilities as mediated by their sensorimotor capacities of their bodies (Gallagher and Zahavi, 2008). From Figure 4.1, and coupled with the views of existential phenomenologists, PA components include cognitive, conative, and affective domains which are inter-twined, entwined, and inseparable in meaning. This state of existence is validated as physical places acquire meanings through personal interactions, and group memories as well as with religious, and natural symbols.

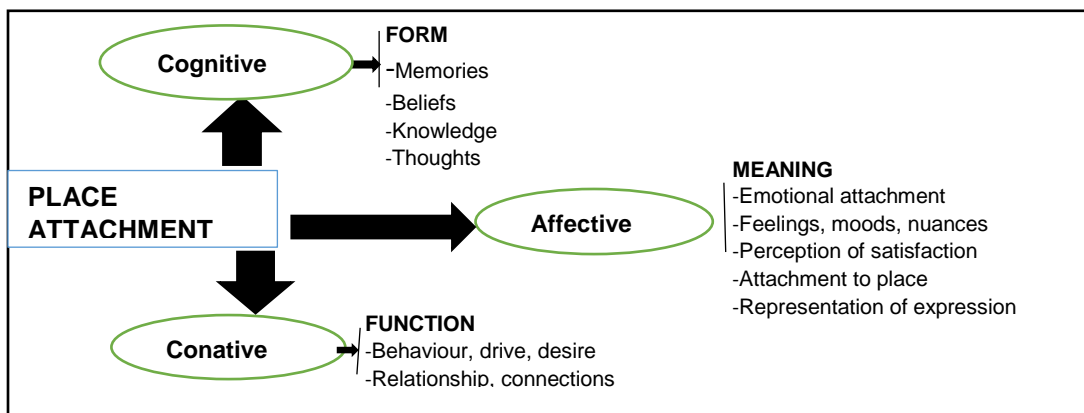


Figure 4.1: Place attachment domains in relation to social and spatial contexts
Source: Adapted from Vaske and Kobrin (2001), Jorgensen and Stedman (2001)

Given this context, this chapter articulates the 'What' and the 'How' dimensions of the research question, and sub-questions. Firstly, the 'What' pertains to the PA research sub-questions, as addressed through the rituals of PA at family and community levels, and revolves around daily prayers, and compound household hygiene and sanitation,

to weekly church/association, and community, and neighbourhood meetings. Other manifestations of PA revolve around marriages, burials, annual feasts and festivals with their related lived experiences among the residents. The related data were collected data tools/processes such as purposeful sampling, ethnographic-based observation, focus group discussions, key informant interviews, fieldnotes, images/photographs, and the re-drawing of maps mainly sourced from primary data, and complemented with secondary data sources. These data were analysed through the use of comparison of the maps at different time intervals (especially with regard to the extent of encroachment and deforestation), thematic content analysis on the responses of resident participants, and phenomenological principles, and analysis of responses from the heads of households (based) on the one-on-one semi-structured in-depth interviews.

The 'How' dimension, was tackled through the identification of perceptual, emotional, attention, and the self-consciousness of residents' PA dimensions. With this two dimensions the 'What' and the 'How', the embodied aspect which investigates all encounters with people, things, events and places together with the cultural, historical economic and spiritual dimensions are considered in the various sections. However, most of the residents see this embodiment concept from a different perspectives: from the fieldwork most residents are emotional attached to their immediate compound (private space) to the detriment of the public spaces (roads, school compounds and uncompleted structures).

Guided by this background, the chapter is structured as follows;

- Data overview and presentation
- Population, climate and religious inclinations of residents
- Family and community rituals
- Significance of rituals in enhancing bonding and sense of belonging
- Individual and collective awareness-of-waste-condition and its effects on sense of belonging
- Lived experiences and consciousness of five heads of households on PA and waste dimensions

4.2 DATA OVERVIEW AND PRESENTATION

Table 4.1 presents the analysis of data based on responses from purposefully sampled 30 heads of households. The responses from interviewees/participants are mainly focused on their bio-social information, and, more importantly, their impressions of solid waste disposal/management practices within their households. The responses indicate that the average household has 6-10 members. Other forms of presentation include verbal reports from focus dialogues, tables, and map-based measures.

Table 4.1: Summary of participants for the purposeful questionnaire survey

Variable/survey	Frequency	Percentage%		Total
Gender				
i. Male	23	76.7		
ii. Female	07	23.3	100.0	30
Age				
i. Adult (25 years and above)	30	100.0		
ii. Youth (25 years and below)	-		100.0	30
Religious affiliation				
i. Christianity	23	76.7		
ii. Cultural leader	05	16.7		
iii. Islam	02	6.6		
iv. Others			100.0	30
Family size				
i. Less than 2	-			
ii. 2-5	03	10.0		
iii. 6-10	25	93.3		
iv. 10+	02	6.7	100.0	30
Level of Education				
i. Primary	12	40.0		
ii. Secondary	18	60.0	100.0	30
Employment				
i. White collar	07	23.3		
ii. Blue collar	18	60.0		
iii. Unemployed/informal	04	13.3		
iv. No employment/pensioner	01	3.4	100.0	30
Waste generated				
i. Bio-waste	26	86.6		
ii. Non-biological	04	13.4		
iii. Don't Know	-		100.0	30
Waste disposal				
i. Adequate	12	40.0		
ii. Inadequate	18	60.0	100.0	30
Attitude/impression towards disposal				

Variable/survey		Frequency	Percentage%		Total
i.	Positive	07	23.3		
ii.	Negative	23	76.4		
iii.	Don't Know	--	100.0		30

Through visual perception (which informs the residents of forms, shape and colour of refuse), and olfactory sensing of smell, they would become more aware of the hazardous implications of waste disposal.

Figure 4.2 shows the satellite imagery of Urora community over 20 years (1997 and 2017). When combined with the population increase, the amount of generated waste is high, and ultimately lead to the degradation of the settlement. The figure reveals that the vegetation cover has diminished from 20 years ago (1997) to a little over a quarter of an hectare (2017), giving an impression of the effect of the invasion of the natural habitat as the City gets urbanised, expanded, and populated on all fronts. Furthermore, the high temperature, and precipitation levels facilitate the decomposition of the increased solid waste generated within a short time, thus releasing pungent/offensive odours into the environment, and further contributes to its degradation.

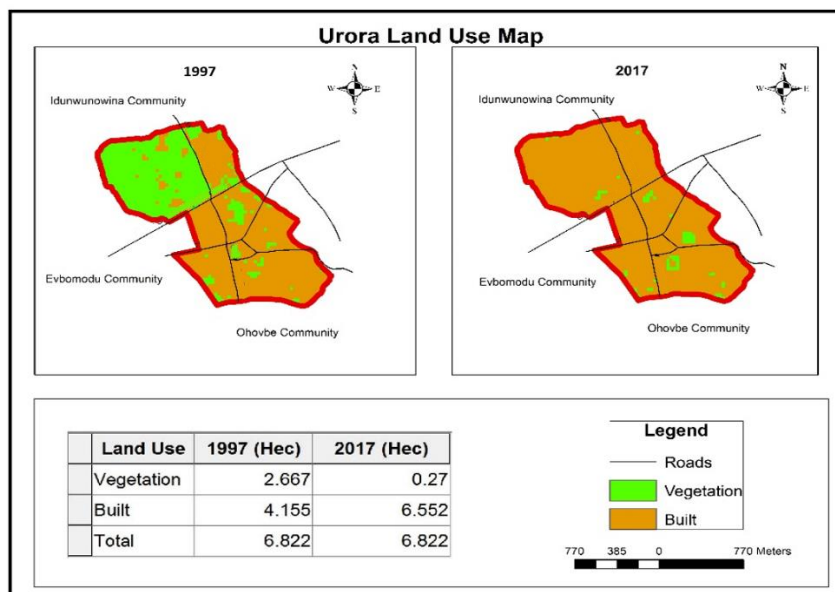


Figure 4.2: Satellite Imagery of Urora community
Source: Adapted and updated from the United States Geological Surveys

Visual perception constitutes the primary mode by which residents engage with indiscriminate waste disposal, and its recognition. The mismanagement of the refuse disposal impacts negatively on residents due to such forms of olfactory disturbance as polluted air, and smoke from open-air burning, which contaminates the atmosphere. Furthermore, polluted air can contaminate food substances, as it favours the breeding of vectors like housefly and rodents, which find the unhygienic environment to be a safe habitat.

4.3 FAMILY AND COMMUNITY RITUALS

For this section, the data on family (first three items) and community rituals (last two items) are as follows:

- Daily prayers and family hygiene
- Weekly Prayers
- Compound hygiene/sanitation
- Weekly gathering Church service/programmes
- Marriages, Burials, Feasts/Festivals

These data were collected in a series of exercises: first, the study designed a purposeful sampling questionnaire, and administered it to 30 heads of households, as understood from Section 3.4.2. Among the interview questions were bio-social information, impression about solid waste management and satisfaction/dissatisfaction with the environment (see further details in Appendix 2). Responses to the questionnaire yielded the required data about residents' capabilities, and adequacies/inadequacies on the various aspects of PA, PEB, rituals, and living condition presented in Table 4.1. The facts derived from the responses, coupled with the knowledge of the key informants were handy in the choice of focus group discussants, and the phenomenologically-guided interviews with the five shadowed heads of households. From these sources, data were collected, extracted, and analysed based on the research sub-questions, with themes and events as sub-themes (see summary in Table 4.2).

Table 4.2: Thematic data analysis using themes and sub-themes of PA

Theme/research sub-questions	Sub-themes	Origin of data	Form of data	Disciplinary location of analysis
Family and community rituals	Family -Daily prayer and family hygiene -Weekly Prayers -Compound hygiene and sanitation Community -Weekly gathering/Church service and programmes -Marriages, burials -Feasts/Festivals	Interviews focus groups, books, natural occurring conversations, newspapers, books	Texts; recordings and transcriptions of talk and photograph	(neuro)phenomenology and insights from neuroscience
Rituals in enhancing bonding and sense of belonging	-Bonding emotional link to community -Bonding attachment and commitment -Bonding involvement in communal affairs -Belonging-belief in community rules and connectedness	-do-	-do-	- do-
Individual and collective awareness of the waste condition and effects on belonging	-Individual awareness -Collective awareness -Waste condition and belonging	-do-	-do-	- do-

4.3.1. Daily prayers, family hygiene and sanitation

The word ritual had to be defined and explained to participants, as several participants needed to know its relevant meaning. Some participants went as far as to think of the occult. The simple explanation given was that rituals are what individuals and groups of persons do on a daily basis, and is performed in the same way repeatedly, from which they derive pleasure and happiness. For this study, ritual also includes habit-

breaking, it also entails initiation from one state to another, where the individual is liberated from the mundane world to one where new and better ideals are imbibed. It could happen through custom, tradition, or even religion, and often is something that was passed down through the generations. With this simple explanation, participants became relieved, at ease, and were interested in the discussions and interviews.

Table 4.3 presents the responses obtained using the data tools mentioned earlier. To start the day, most heads of households take the lead to bring its members together for the early morning worship, prayers, devotion, adoration, and supplication, more or less at a sacred location in the homestead, in the presence of (the) god(s), spirits, ancestors, and divine beings. The worship is normally accompanied by songs of praise, and musical rendition as offered by the worshippers as they gather at the family altar. Through this worship, some worshippers/participants claim to be happy and fulfilled. Furthermore, the fellowship brings them joy and happiness.

By offering their difficulties and worries to God through prayers, whom they claim to be all-seeing and all-knowing, the worshippers would not expect anything less. Despite their avowed connection between the transcendental, and the humans and the world, some of the residents are in the habit of faithlessness, as some worshippers consult one deity after another in search of solutions.

As observed from the transcript of one key informant.

But again, among the Christians who abuse the ATR (African traditional religion) worshippers, when they are faced with serious challenges, they go to consult the traditional worshippers; like my son is in Libya and wants to cross to Europe among other life challenges; they come for prayers and also go there. But as soon as the problems are over, they revert back to what they were. So the problems have a way of drawing them back to what they condemn ordinarily.

- Key informant 2, 10 February 2017

Based on such responses, the data indicates that there is no deep association/commitment between the residents' beliefs/behaviour and their espoused faith. The action itself can be regarded as neo-paganism since magical powers are

Table 4.3: Summary on interview analysis with research tools on family and community rituals

PA-Sub-questions	Ethnographic observation	Focus-Group/Workshops	Key Informant	Household interview
What are the commonly shared rituals at family and community levels in the settlement?	<p>Family -Prayers, washing, cleaning, bathing and sweeping</p> <p>Community -Daily, weekly masses and services/Mosque, Church activities. -Festivals; <i>Ikpoleki</i>, <i>Igue</i>, Easter, Christmas, Eid-el-Malud, Eid-el-Fitr -ATR 5-daily activities/prayers, -Marriages, birth, death/burial, naming ceremony.</p>	<p>Family -Brush teeth, bath, pray, eat, sweep, children to school. -Worship of ancestors; <i>Edion</i>, <i>Okhuaihe</i> deity.</p> <p>Community -<i>Okhuaihe</i> and <i>Ikpoleki</i> festivals annual events</p>	<p>Family -Daily prayers, enlarged through residents of the same faith</p> <p>Community -Christian festivals are more attractive because it is done in the open as compared to ATR which takes at night. -Levying of residents to raise a fallen energy pole</p>	<p>Family -Daily prayers as the head of the family leads before other assignments like sweeping, washing, bathing, eating, children to school and parents to their work place</p> <p>Community -Residents, community, ethnic groups come together to celebrate marriage and burial</p>

mixed with pagan worship to open the way for a person concerned to deal with an awkward situation. A focus-group discussant reinforced this view when he said;

“There is no community whose members do not perform sacrifices, going to church. I have a deity I worship until date, I still worship it. Although I still do attend church on the other hand, because it is what obtains in the society that you meet that you align with”.

Excerpts from C1.4 Focus group discussant 22 February, 2017

At another end, the practice of residents of mixing Christian faith with ATR could be regarded as an expression of a different layer in the residents’ belief systems, as most residents initially were traditionalists and only encountered Christian faith via the missionaries. Some of the residents signify this hybridisation practice with the common slogan “the end justifies the means”, while others see the practice regarded as “putting what they believe into practice”. Through this strategy, residents remain committed, and resolute in their multiple belief systems to the extent of conditioning and influencing with their thoughts the relationships with other residents.

Personal hygiene practices (such as bathing, brushing of teeth, washing of clothes) are the key family-level activities which occupy the residents on a day-to-day basis (see Table 4.3). While these functions may look ordinary, our ethnographic data revealed the aspect of primary socialisation that instils the “dos” “don’ts” within the community, thus influencing how a person ought to behave in the larger society. Most of the heads of households, and other residents interviewed regard this aspect of personal hygiene rituals very highly as one of the participants said: “Since we do it regularly as in the same manner it is part of us and we cannot do without it”.

In cultural phenomenological and neuroscientific terms, the similarities between the daily prayers and family hygiene (mainly because of their regularity and repetitive nature) lend support to Dornan’s (2004). This position is corroborated in Csordas’ (1993) somatic modes of attention in cultural phenomenology and Ratcliffe’s (2006) mirror neurons. For Dornan (2004), for example, the daily prayers/ritual performance is more than just a symbolic expression of belief as it reinforces and authenticates beliefs through subjective personalised experiences. Csordas’ (1993) notes that somatic modes of attention tend to bring out in the worshippers their commitment to and with the God/god they serve and their relationship with immediate neighbours

whom they see on a daily basis and interact with inter-subjectively (as subject-to-subject).

Ratcliffe (2006) argues that the ability to imitate most likely has its source in conscious mapping between perception (defined as mirror neurons discharge when observed goal-directed matches performance) and proprioception (defined as mirror neurons released when the body is able with the eyes closed to sense its orientation). Since the processing of the relevant stimuli takes place in the Broca region of the brain, the ability of one person to imitate the other is quite high since they live in a life-world and are intersubjectively connected. As a goal-directed practice, the fundamental purpose of prayer is to honour and worship God who, in turn, can be expected to bless, and reward the faithful adherents. In phenomenological terms prayer is an episodic meaning venture as it has become an intricate part of the residents' way of life, besides, it has become part of their meaning-making venture.

4.3.2 Weekly Prayers

Based on data from Table 4.3, among some adherents of African traditional religion (ATR), the weekly worship (once every five days) with *Ayelala* and *Okhuaihe* deities is common practice. From the participants who specialise in the traditions of the community (and this was also corroborated by the responses of participants in the focus group discussions), the following responses were captured. The mode of consultations takes diverse forms such as worship, fortune telling, and prophecies about the future concerning the interests of the individual or a group of people/community, who could either be friends or enemies. Through the chief priest, the identities and the secret agenda of suspected evildoers are revealed, and by so doing, the priest warns the adherents of impending danger/doom. The chief priest (as directed by the deities) is to prescribe solutions/remedies to persuade the perpetrators or would-be perpetrators to desist from anti-social acts/behaviour. The confirmed perpetrators thus engage in confession after an encounter with the deity, followed by the repentance of their evil acts, deeds or ways.

However, after due consultations with the deities, and refusal to concede to the retributions as recommended by the chief priest, the suspects are brought before

the higher god at *Ogbeodeyea*n. The priest of *Ogbeodeyea*n presides over a more extensive community comprising *Urora*, *Evbomod*u, *Idunmwunowina*, *Evbuv*o*vo*e*n* and *Aideyea*nba. If the suspect(s) is/are dissatisfied with his prescriptions, he/she/they will appeal to the palace of the Oba of Benin for further actions.

Further responses from the participants concerning the mode of ATR worship in the community, is that within the realm and hierarchies of deities like *Okhuai*he or *Ayelala*, there are lesser gods like the *Obiemwen*, *Olokun*, *Esu* and *Erhe*, whose activities and functions are no less important since they maintain some influence over the adherents of ATR. For example, the *Erhe* and other gods are offered gifts before any sacrifice is performed, otherwise the sacrifice of the petitioner may not reach its destination as these lesser gods could obstruct the petitions/prayers/entreaties from being answered, or attended.

According to some participants, and corroborated by responses of the focus group dialogue, the exception to this routine is, as an example, the declaration of a fast aimed at averting an impending doom, or something of grave concern to the community (drought and famine) as proclaimed by the local priest/community leader. They set aside a day a week for the worship of ancestors (departed fathers, parents or chiefs) who have left an indelible mark on the lives of the people during their lifetime, with the belief that the success that they (the departed) achieved while on earth, will be bequeathed to them (the off-spring/descendants). These ancestors who are believed to have survived death or are living in the spiritual world (*Erinmw*in), are capable of influencing good or evil acts/actions and possess powers over the adherents/off-spring. The most common harm/misfortune believed to be caused by the ancestors is sickness or death, which may happen when a descendant neglects the ancestors. Hence the famous saying: "*Erinmw*in owa e re o *kpokpe ere*", which means, "he is troubled by the ancestor".

From the preceding, we can deduce that there is a mixed action of positive and negative rites; positive rites reinforce the view held by Bell (1992), which says an attempt to bring the human and sacred into contact or communion, particularly in this case when the faithful adherent believes himself/herself is protected by the spirits is under the divine guidance. On the other hand, negative rites separate the

human realm from the sacred by imposing restriction or taboos, of which the effects are uncomplimentary, until specific acts of cleansing or sacrifices are performed to appease the gods.

ATR adherents also worshipped multiple gods (such as *Ogun*, *Iha*, and *Olokun*) who are located at their homes on a daily basis for protection, guidance, and prosperity. Common to these rituals is the emotional drive to perform the act, anxiety at the mere thought of failing to perform it, some relief after the performance, and the adherence to the prescribed way of performing it, as tradition guides. In the words of some focus group discussants, “something in you will remind you, otherwise your mind will not be at peace until you perform the ritual”. This stand on ATR worshippers’ mode of service corroborates Boyer and Lienard’s (2006) study which states that causal sequencing of elements of reality abstracted from a sense of prescription is implicated in the inferior parietal lobule of the brain. Among the adherents of ATR, there is the general belief/agreement to continually perform these sacrifices because of their deemed enormous benefits that will accrue to the worshippers.

4.3.3. Compound hygiene and sanitation

A standard feature in the settlement is the issue of compound hygiene and sanitation. From Table 4.3, and through ethnographic observation, over 70% of the residents/households take part in compound hygiene and sanitation as they made it their duty to take their bath and sweep around their homes on an ongoing daily basis. The ethnographic data revealed this level of commitment as most residents see household activities as rituals. The researcher hardly found a household that has not swept or kept the compound clean. This mainly stems from the belief that ‘cleanliness is next to godliness’ (see Figure 4.3). Some residents have echoed the belief of cleanliness and godliness mainly, as most of them appear to be religiously inclined in their daily lives and habits. However, as soon as they gather the debris, most often it is disposed of at the *Otiku*, which is a dump site behind the house, while other households either set the debris ablaze through open-air burning, engage in shallow burial, or in its disposal in open spaces (such as streets or school compounds, moats, and uncompleted buildings or fallow land/places).

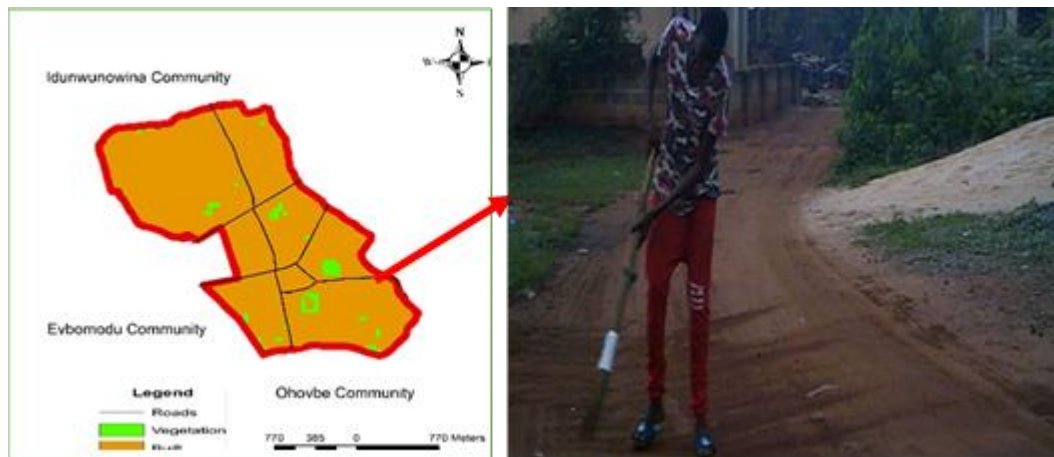


Figure 4.3: Homestead compound sweeping done on regular basis

On further inquiry about the conspicuous absence of waste bins, the residents informed the researcher that the state/local governments, and by extension the accredited waste collectors, were supposed to provide such bins. Additional responses indicate that waste collectors come twice in a month, the minimum time limit set by the government, and that they cover about 25% of the households, thus leaving the other 75% unattended. However, one the waste managers claimed that most of the households refused to accept the government's plan, and by so doing, citing the state by-law No. 5, 2010 (the Edo state sanitation and pollution management bye-law) run the risk of prosecution. Besides, every household has been mandated by Second Schedule No13 of the bye-law as amended, to pay the required 1 000 Naira monthly for waste removal. Refusal to pay the necessary amount means that they are the people responsible for degrading the environment through indiscriminate waste disposal, and by so doing contravenes S. 32;1 and are therefore liable to a fine of 6 000 Naira.

4.3.4. Weekly church gathering, service/programmes

From the researcher's perspective, and also corroborated by field notes and information from key informants (see Appendixes 3 and 6), one of the occasions that is hugely attended by most residents is the weekly church service, programme, and meetings. It is common to find residents of different age brackets, young and old,

male and female sing, dance, gyrate, and glorify the Lord with love and passion. Table 4.4 indicates that there were a total of 31 churches (and denominations) and prayer houses at the time the fieldwork was conducted (November 2016 to March 2017). The activities include programmes like church services, Bible studies, children's classes/evangelism choir/singing ministry and practise, daily masses, once monthly/weekly all-night programmes.

Table 4.4: Religious place of worship and location in Urora

Religious centre	Address	Remark
St Gabriel Catholic Church	Uhunmwangho street	Christianity
Church of God Mission (Solution centre)	Osagiede Agho- Ighiekpe	-do-
Deeper-life Bible Church	Emmanuel Aigbose street	-do-
Chapel of Deliverance		-do-
International Ministries	Emmanuel Aigbose street	
Assemblies of God Urora branch I	Emmanuel Aigbose street	-do-
Christ Apostolic Church	Iyamu street	-do-
Jesus Holiness Bible church	Ehigie Street	-do-
God Devine Grace Ministry	Ehigie Street	-do-
Royal Conquest Ministries	Idehen Street	-do-
God's Love Baptist Church	Omosun Street	-do-
God's Gateway Ministry	Oviawe Street	-do-
Christian glory Ministry	Enohuwa street	-do-
The Redeemed Christian Church of God		-do-
	Ohihon Egobi Street	
Altar of flames Ministries	Ohihon Egobi Street	-do-
Sonship Faith Fire Ministries	Idunmwunowina road	-do-
The Faith House Ministries	Eromosele street	-do-
Christian Pentecostal Mission	Ikponmwun street	-do-
Christ in Action Ministries	Ikponmwun street	-do-
The Redeemed Christian Church of God		-do-
	Old Auchi Road	
Bethsaida Sabbath Mission Incorporated		-do-
	Dr Aba One road	
Church of God Mission (Living Spring centre)		-do-
	Dr Aba One road	
Mountain of Fire and Miracles Ministry Incorporated		-do-
	Osamudiamen street	
Assemblies of God District II	Osagiede street	-do-
Rain of Grace and Glory Ministries	Osamudiamen Osagiede street	-do-
Jesus Messiah Resurrection		-do-
Power ministry	Otamere street	-do-

Religious centre	Address	Remark
Christ the rock ministry (Miracle plaza)	Off Uyi-Edo filling station	-do-
Kingdom Hall Jehovah Witnesses	Ehigie street	
Salvation Deliverance Ministries	Agonkpolor Street	-do-
Kings Bible Church Worldwide	Osagiede-Agho/Ighekpe road	
Christ Apostolic Church	Osagiede-Agho/Ighekpe road	-do-
Prophetic Eagle Assembly	Ikekhu Street Off	-do-
	Omorodion	-do-
<i>Ogua-edion</i>	Old Benin-Auchi road	-do-
<i>Aroebiemwen</i>	By Enohuwa street	African Traditional
<i>Adaeyeanba/Aro-Okhuaihe</i> shrine	Off Osagiede-Agho/Ighekpe road	Religion
		-do-
<i>Ogbiro</i> (sacred tree)	By Enohuwa street	-do-
<i>Ogboedeyaan</i> shrine	Old Benin-Auchi road	-do-
		-do-

One critical aspect of worship is the accompanying song/music with poignant but thought-provoking messages and meanings. The worship is thus propelled by sound bites similar to those used in advertising techniques, and therefore likely to dull their reflective ability, and capacity with a view to opening themselves up to the wider collective identity.

One of the reasons why most of the churches receive high levels of patronage has to do with their complementary advertising on radio and television. Such advertising focuses on the exploits of the host/visiting pastors, with claims that God has used them to achieve close to impossible feats. Moreover, the pastors claim the same God is still using them to bring assistance to the hopeless, and peace to the weary, among other similar promises. These observations became evident from the ethnographic observations in the settlement, as the airwaves were frequently punctuated with advertisements from radio and television channels. Given the recent economic downturn, yet more people are likely to flock to these prayer houses and miracle centres to receive promises or assurances of hope for a better tomorrow. In the course of the ethnographic observation, within a space of three months, two new/additional churches/prayer houses were ostensibly established by founders who migrated/pulled out voluntarily or were forcibly removed from the existing

churches. The ongoing fragmentation especially among the Christian Churches, constitute the most common manner of extending the reach of the belief system.

In places of worship, and particularly in the churches, members' activities, and behaviour are regulated by certain norms and doctrines, where the adherents supposedly subject their moral code to a higher authority. This position is in consonance with Husserl's "one experiences oneself as judged, as endowed with a significance, a meaning of which one is not the author, one is no longer a being-for-itself, but a being-for-the-other; the other dictates how one's is to be regarded, interpreted" (Hammond *et al.*, 1991, p.224). Apart from this goal-directed behaviour, which is common to most churches, a common feature which has become a habit in the majority of the churches is the abnormally high noise levels created during their services. Given the neuro-scientific perspective, the auditory neurons are therefore subjected to over-stimulation during such events.

4.3.5. Marriages and burial

Data presented in Table 4.3, indicate that marriage and burial are two additionally community rituals commonly practiced among residents in the community. In anthropological literature, marriage and burial ceremonies are classified under "life-crisis" or "life-cycle" rites since they culturally mark a person's transition from one stage of social life to another (Bell, 1992). Two of the actively essential occasions of community PA practices within the Urora settlement community, are marriage and burial ceremonies. Irrespective of the celebrant's religious persuasion and social status, weddings are very well attended by networks of relations from different walks of life. When the celebrant or both couples belong to an ethno-religious group, the members make it a point of duty to support and identify with the celebrant(s), thereby fostering group solidarity and commitment.

The support and assistance from these ethno-religious groups are demonstrated within both the church and family affairs at the ceremony. For example, at the reception party for either marriage or burial ceremonies, the activity reaches a crescendo when the couple take their turn on the dance floor, with a live band set on the background. At this juncture, the different ethno-religious groups and societies make to the dance floor one after the other to honour, felicitate and identify

with the couple. The various groups tend to try and outwit each other with their colourful mode/style of dressing, and by so doing add colour to the joyous moment (see for example Figures 4.4 and 4.5).

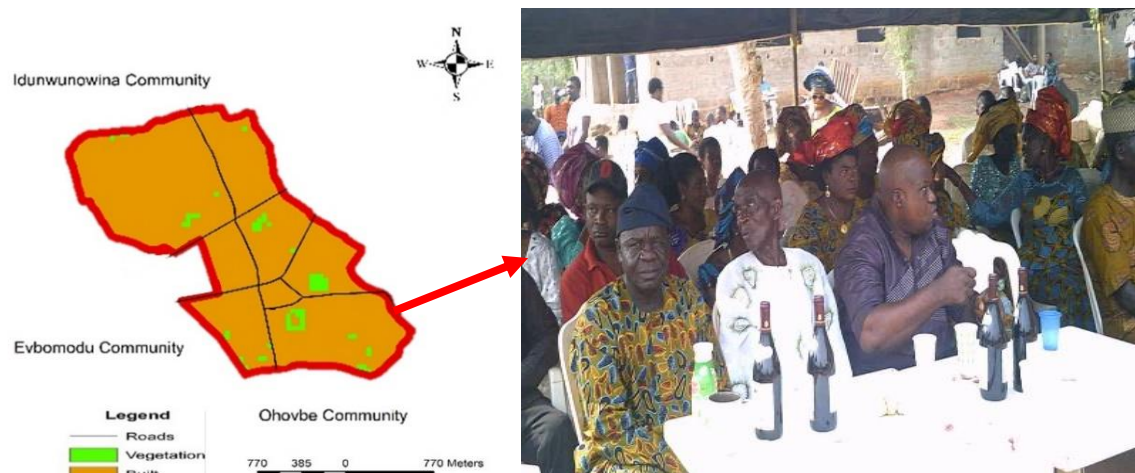


Figure 4.4: Burial event: the gathering of the young and the old from different walks of life (Saturday 25/2/17).

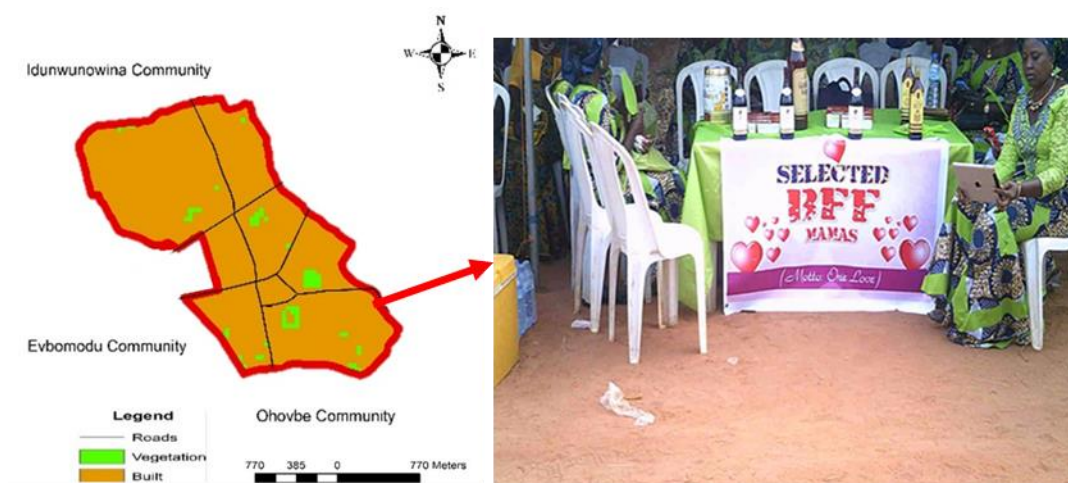


Figure 4.5: Uniform attire of a social group in a burial event (Saturday 25/2/17)

From the ethnographic observations which are corroborated by key informants (see Appendix 1, key informant 3), burial ceremonies receive more attention in the

settlement compared to ceremonies like naming and concerts, which receive relatively less attention. For example, if the deceased is a traditional ruler, as a mark of honour and respect the 'subjects' are expected to completely shave their heads and also wear black dresses. If a Christian, the shaving of hair and the wearing of black is discouraged, as it is deemed unchristian. Burial in this locality supports Bell (1992), who notes that as a 'life-cycle' rite it presents through ceremonies an opportunity for nature and culture to interact, and in turn significantly influences the values and ideas that shape personal identity, cultural tradition, and social organisation. A brief description of what takes place was captured in the researcher's field notes:

An attractive poster conveying the image of the deceased, age, surviving relations and highlights of the programme of events adorn some major streets in the community. This action is in addition to the paid advertisement/announcement on radio and television. On approaching the residence of the deceased, a newly painted façade, canopies of different sizes and plastic chairs are some of the visible signs indicating the loss of a dear one. Among the bystanders, some group of in twos or threes with long faces, discussing the incident that took place, mainly the life, experience and their encounters with the deceased. The low turnout at this time of the day suggests the following possibilities; the corpse is yet to arrive from the mortuary, it is not time to begin the programme, or other members of the family may have gone about some aspects of the funeral arrangements. A few days before this event, the extended family members under the leadership of the *Okaegbee* (the most senior male in the family lineage, as the community is patrilineal) had held a series of meetings and had taken certain decisions. One of such arrangements is to appoint a representative of the *Okaegbee* (an immediate junior of the deceased in the family lineage), who will preside over the funeral plans and rites of the departed. It is this representative, along with other lieutenants appointed by the meeting (*Iko-egbee*) chaired by the *Okaegbee*, that will decide and preside over the members of the deceased's off-spring that will be eligible to participate in the burial. For example, a female child of the departed who was not traditionally given out in marriage may not be allowed to participate in the funeral until she performs the marriage rites. The deceased's sons-in-law and daughters-in-law are free to attend as long as they are accompanied by their spouses who, incidentally, are off-spring of the dead. In case the deceased died intestate, the *Okaegbee's* representative also presides over the sharing of assets.

The arrival of the corpse from the mortuary signals the commencement of another phase of the funeral activities, which is the lying in state; with the members of the family, friends and well-wishers paying their last respects. A service of songs is organised, depending on the deceased off-spring's religious persuasion, which involves Bible readings, sermon, songs of praise, and light refreshment. During the social wake-keep/dance, guests are entertained to a live band presentation with music and food and drinks. The different associations and groups which the deceased or the children of the deceased belonged to tend to outdo one another with their uniform dress code, dancing steps, and by accompanying their members to the dance floor with cash gifts, among other items. The associations

could vary from social clubs to religious and ethnic/kinship groups, with as one of the objectives to rally around members who are in need of assistance, both in cash and in kind.

The remains of food packs and other refreshment generated refuse at the ceremony. Another environmental hazard that caught the attention of the visitor/researcher was the noise and smoke from the stand-by generating set. Overnight, or during the day as the case may be, the venue is littered with all manner of refuse from empty plastic water sachet/bottles to disposable take-away packs. At dawn or at the close of the event, the researcher witnessed the arrival of a young female with two other young lads who may have been constrained to come because of the smirks on their faces, to tidy up the venue with brooms and packers as they dispose of the waste contents at the *Otiku* behind the house.

Excerpts from author's field note based on observation February 2017.

One of the reasons why burial rites and events are popular and highly celebrated, is the belief among the Benins and other ethnic groups that failure to give the departed a befitting burial can see the ghost/spirit of the dead cause unimaginable problems for the family s/he left behind. For example, the spirit of the dead can cause sickness, disease, and lack of prosperity - some of the tragedies that can afflict the family members, most especially the senior son. According to Ero (2003), it is always a prayer or a curse in Benin to say: "*Vbene u ruu ne erha errio omo gha vbe ruu nuen*"; translated to mean "as you did for your parents so also your children will pay you back".

A vital aspect of the burial rites as revealed by the key informant and corroborated by the focus group discussants, is the age, sex, parental status, and office at death since these qualifications involve certain rituals and physical demands from the descendants towards the deceased. For example, if the departed had attained the status of priest, chief and the like, he is treated as separate entities and assimilated into different social groups so that the same man is worshipped after his death. For this reason, after the second burial rites, the first-son will bury (*rho*) and plant (*ko*) the deceased with a shrine to serve him as an ancestor.

If the dead father were a senior son, the present son would add his *Ukhurhe*- the ancestral staff of his father at the *-Aruerha* (altar of the forefathers). The *Ukhurhe* is an object invested with symbolic meanings, and is connected with past experiences, memories and held in perpetuity for the lineage of the first-born sons (Dmochowski, 1990). However, rites of assimilation into groups to which the departed father belong

must be completed before the attainment of ancestor status can be comprehensively achieved. Among African ancestry, burial rites, and rites of passage are performed in the traditional setting in the general belief that the deceased is moving from one physical state to the next.

A standard feature peculiar to both burial and marriages under ATR, is that they follow a pre-determined pattern. This pre-determined pattern in neuro-scientific terms agrees with Ratcliffe's mirror neurons which are goal-directed, and as the present leaders give a task to the next generation that succeeds the current officials. The observed performance of the officiating personnel matches the actual actions ordered by them. In addition, such tasks, which involve specific functions like going on errands, as well as being given tasks to see if they have mastered some roles and observances.

Burial and marriages have cultural undertones and would be seen from that context. For this reason, Csordas's (1993) somatic modes of attention in the realm of cultural phenomenology, referencing to the totality of bodily engagement of the celebrants', in this case the guests', aesthetic sensibilities would be totally engaged in the processes. Further, somatic modes of attention could also guide the study with their colourful attires, and the beautifully decorated venue go a long way to engender meaning making, and give further significance to the occasion. If stretched further, it follows that the totality of bodily engagement includes not only the couples that have given themselves up in marriage, but also the extended family who has been co-joined/bonded together in so many ways. For example, the father of the groom or his representative receives the bride, who in turn presents the bride to the son after the bride's father has placed her seven times on the lap of the groom's father. The number seven is symbolic as this signifies that the lady was given in perpetuity to the groom's family.

The corroborating accounts on marriages and burials were derived from field data collected through the ethnographic observation, (observer-as-participant) and complemented with responses from formal and informal interviews from some of the key informants, and personalities who became friendly with the researcher during his stay in the settlement.

4.3.6. Feasts and Festivals

The programmes that tend to bring everyone together, irrespective of religion, ethnic divisions, and social status are the communal feasts and festivals. Table 4.4 indicates these occasions as Christmas, Easter, *Eid el Fitr/Malud*, the traditional *Eki kpoleki*, and *Igue* festivals. Each of them takes place once every year. They are considered communal primarily because of their scale, proportion and, most importantly, inclusivity. Nearly everyone, irrespective of religious leanings or persuasions, participates in the events. A feature common to all these festivals is that people are seen in their various attires and moods, as well as ready to play host and/or visit friends or relations who have come to celebrate with them.

In particular, for the traditional festivals of *Eki kpoleki* and *Igue*, indigenes make journeys to visit and to honour or identify with friends or family members. In the course of the fieldwork, the researcher learnt that *Eki kpoleki* (which translates to sweeping of the market) has a more profound meaning/concept. It entails the averting and bringing into submission the plans of the enemy, through the gods sweeping away all evil like troubles, disease, sickness, drought, famine, and the worries of life. The *Eki kpoleki* festival started during the time of Oba Ewuare I, and also the owner of the *Okhulaihe* shrine which any reigning Oba inherits. In the Urora, indigenous/communal context, the first group ritual of worship is to the *Okhulaihe* deity, and entails five communities (Urora, Evbomodu, Idunmwunowina, Aideyanba and Evbovuo) with Urora as the headquarters.

The communities are represented by people who come together to perform the annual rituals, which opens with a visit to *Ogbiro*, an ancient tree of spiritual significance (see Figure 4.6). At *Ogbiro*, supplications and sacrifices are offered to the gods as a remedy against misfortune, protection against potential risk, intrusions, pandemics, and against enemy raids. This function is led by the chief priest or any other high ranking official within the community. Additional visits and celebrations follow after that, with music rendition. At the *Oguaedion* (Elders' Sanctuary, see for example Figure 4.7) meetings are held occasionally under the guidance of the most senior man in the community (known as the *Odionwere*). Along

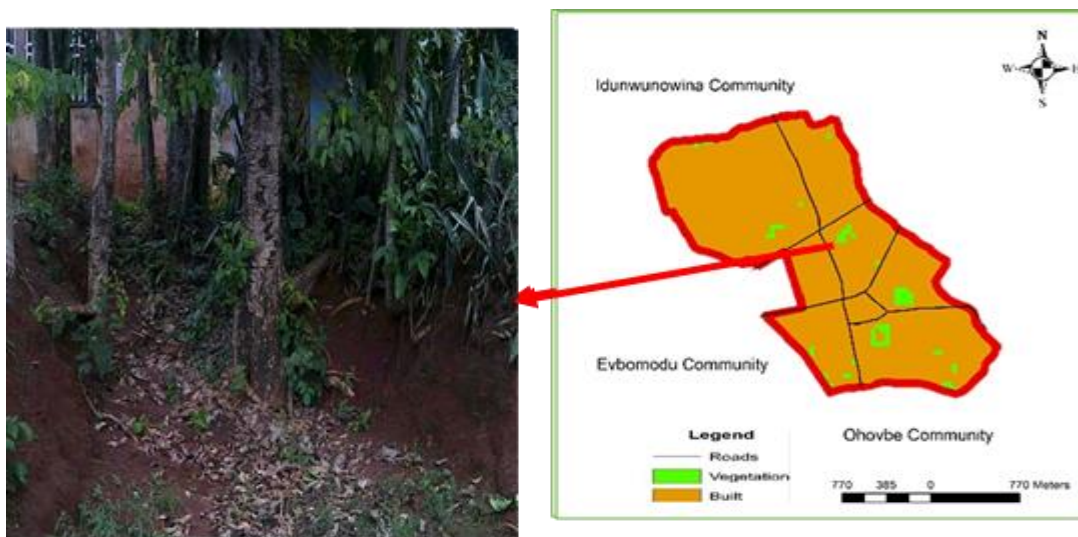


Figure 4.6: *Ogbiro*, A sacred tree of spiritual significance.

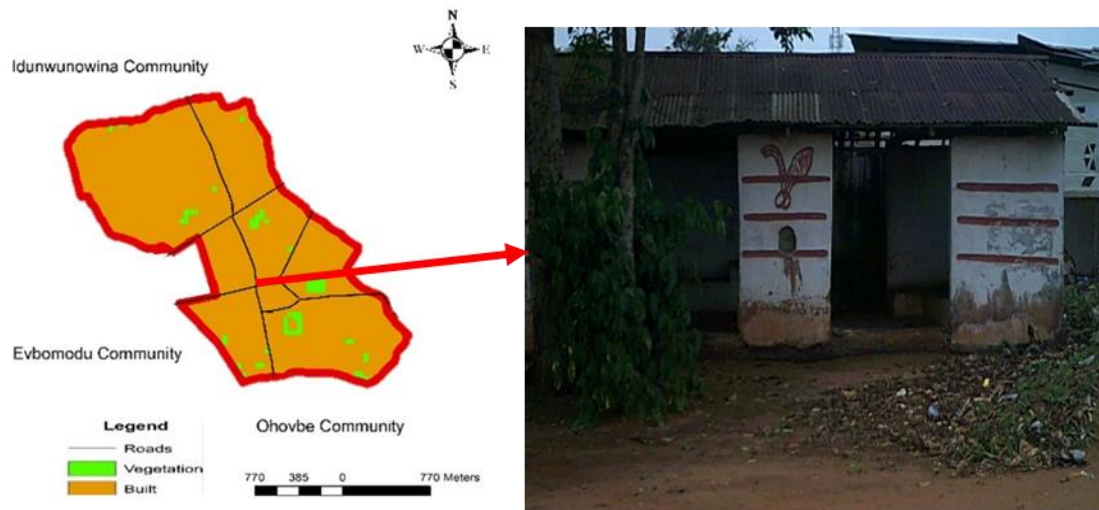


Figure 4.7: *Ogua-edion* A place of worship and honour of the ancestors (Elders sanctuary)

with his other lieutenants, he gives guidance on when and how regular meetings should be conducted.

Responses from the focus group dialogues, and key informant interviews with heads of HH on PA issues, (see Appendices 5b and 1, Key informant 1) revealed that the most prominent traditional festival that has received world attention is the *Igue* festival. In simple terms, it merely means thanksgiving, anointing of the head as instituted by Oba Ewuare I, after the success of his travails in the course of ascending the throne of the Oba. The term *Ewere* means good luck and safety. However, as time progressed the ceremony has come to acquire other spiritual dimensions because of the songs and chants rendered on the day.

There are close similarities between the responses solicited from the *Igue* adherents in this study, and those described by Bell (1992) where she contends that communal celebrations that enjoy widespread acceptance are mostly associated with fervent worshippers, whose moods and motivations are encouraged by incantations together with the recitation of a myth, and sacred symbols. Such rare celebrations (moods/motivations mediated by incantations) bond worshippers with the general conceptions of existence which they formulate, thus go a long way to validate and reinforce another. The outcome of this engagement/relationship goes a long way to influence solidarity and oneness among the worshippers as they coexist and interact among themselves. This celebration also fits the description rendered by Seamon (2011) as the 'already-lived-togetherness-closely'. Experientially, therefore, there is no separation between the sacred symbols and the people's general conception of their existence; the *Igue* festival as a one-ness among worshippers is co-created and experienced simultaneously.

Findings from the ethnographic observation guide the insight that most residents celebrate Christmas. As the day approaches, family members, both young and old, would make elaborate preparations to cover clothes, shoes, food, drinks, music and outings. They visit places of interest such as eateries, clubs, amusement parks and zoological gardens. Friends and well-wishers are welcomed, and absorbed into the celebrations.

4.4 SIGNIFICANCE OF RITUALS IN ENHANCING BONDING AND A SENSE OF BELONGING

This section of the study applies ethnographic and phenomenological data tools in exploring the importance of rituals in promoting bonding, and a sense of belonging among the Urora community. Given the two principal terms of bonding and belonging, this section goes further to show how residents' belief patterns, especially belief beyond the rational or physical level, and the practice of rituals to mediate or reintegrate the subject and object at occasions that foster counterintuitive experiences (Saroglou 2011) in engaging the significant four religious dimensions, and cultural variation in providing some insights as reflected in Table 2.2. His thoughts, along with others, assisted the study in ensuring a systematic alignment of the data collection and analysis stages, as presented in this section.

The initial sub-sections explain the core/relevant concepts in line with the phenomenological understanding of the residents' bodies as being-in-the-world, and similarly that bodies constitute a wellspring of existence, and the site of experience. With this insight in mind, this section is presented under the following sub-sections;

- Bonding- emotional link to community
- Bonding- attachment and commitment
- Bonding- involvement
- Belonging-belief in community rules and connectedness (see Figure 1.1)

4.4.1 Bonding- emotional link to community

Bonding pertains to the affective dimensions of religion, the existence of superiority, the self-transcendent experiences that integrate the residents, or some of the residents, to preeminent reality with other members and with the inner-self. More often, when it comes to group assignment and worshipping, the normative influence (willingness to conform to the positive expectations of the general norm) is pursued/emphasised more than self/individual interest.

Table 4.5 presents the data tools from the participant-observation, field notes, interviews, and focus group discussions. The data reveals the community consists of diverse, religious groups, and within a group there is lower-level variation into

denominations with leanings, teachings and doctrines that in one way or another mould the behaviour of their adherents in a unique manner compared to the overarching higher level system. For example, the ATR worshippers when celebrating the *Ikpoleki* festival are of the opinion/belief that through their participation in the festival's communal worship, the *Ikpoleki* has the power as mediated by rituals, to invest/transmit stronger bonds than exist among members through strengthening cooperation, solidarity and one-ness as the critical outcomes of such an exercise. This thought/impression came to the fore during the field-work when one of the focus group discussants contributed the following response:

It is the community you live and dwell in that you guard jealously. With this fact comes love and unity that translate to sympathy and empathy among the community members who sees each other as one. I grew up to know that our ancestors have long started this love of one another as the venue of our meeting today plays host to that occasion. Once every year this event is celebrated. With this unity and a sense of purpose, we always look out for the interest and welfare of one another. -

Excerpts from C1.4 February 22 2017

The participants confidently shared their view that the disregard by a nearby community to perform these festivals had led to a disconnect in the social order, and social/community life collapsed into chaos. Instead, there exists incoherence and a lack of unity as exemplified by the series of upheavals that the community has been experiencing, and from which they are yet to extricate themselves. Religion is believed to activate self-transcendence and consciousness/cognition which facilitates compliance. The excerpts above strongly corroborate the findings of Altran, Axelrod and Davis (2007) (as appraised in Section 2.2) that sincere respect for sacred values mitigates moral bankruptcy. According to the participants, the residents of *Ahor* community (the nearby village) may not have respected the injunctions of their forebears hence they have been in and out of troubles, as reported through the contributions of one of the focus group discussants;

Table 4.5: Summary of significance of rituals in enhancing bonding and belonging

PA-Sub-questions	Ethnographic observation	Focus-Group/Workshops	Key Informant/actor	Household interview
What is the significance of these rituals in enhancing bonding and sense of belonging in the settlement, in Urora and Benin City in general?	<p>- Use religion to maintain bond, solidarity, oneness, and love for one another.</p> <p>-Use existing structures like the Oba, chief priest, <i>Odionwere</i>, <i>Okaidunmwunwun</i> street to bring about peace, law and order</p>	<p>-Use street executives to bring about community development like levying members to control erosion, assist the bereaved among others</p>	<p>-There was a time the <i>Ikpoleki</i> festival was held on Sundays accompanied with curfew thereby preventing Christians from going to Church. All that is resolved now with the stakeholders coming together. To the extent chief, apostle/founder of a Pentecostal church who hails from Urora donates cow to the indigenes to celebrate <i>Ikpoleki</i> festival.</p>	<p>The family experience cohesion, unity and sense of purpose</p>

Let me make an example, *Ahor* community have the rituals they perform every year, but the failure by the community to keep performing these rituals have led to a series of upheavals in the land to the extent they kill themselves. No settlement (peace) in that community as everyone is on their own, no order in the community because they have stopped the ritual activities their forefathers have instituted to sanitise the community. That group ritual must be performed every year; it is in the ceremony you are expected to receive or not to receive your blessings. Even when you are not opportune to come for the ritual, you can perform a personal ritual by the saying of certain words into a substance made of native chalk and salt and blow it into the atmosphere. There is a consequence/repercussion if you say you are not going to do it.

- Excerpts from C1.5 February 22, 2017

Regarding the issue of unity, a sense of purpose and victory is expressed during the *Igue* festival, another community gathering, whose spiritual rites was initiated by Oba Ewuare the Great (1440-1473 AD). This event is to commemorate the events that made it possible for him to overcome all the crises of intrigues, betrayals, and loss of lives before ascending the throne. *Igue* also marks the end of an Edo year, and the beginning of another. It is time to banish all evil forces from the land and invite blessings for the coming year. Similar to thanksgiving, sharing, caring, love and devotion to the God-head are the hallmarks of the festival. For the Benins, God is an unseen spirit that resides in every human being. This belief also extends to all things in creation, so that by serving other human beings, through human-head (normally understood as the god-within, the seat of human intelligence, an epitome of the individual), you serve God. This is understood to be the origin of the proverb, *Uhunmwun omwan ore osuomwan* - meaning that it is one's head that guides the person.

An aspect of the *Igue* festival that has drawn much attention especially from young and middle-aged people, is the dancing and singing in the streets of each settlement with a leaf of broad petals called *Ewere*. This constitutes a re-enactment of the events that took place at the marriage of the Oba to Chief Ogieka's first daughter, *Ubi*. *Ubi*'s behaviour was below expectations and she was sent home, and replaced by her younger sister, *Ewere*, who was as beautiful as the lilies (Isekhure, 2007, Izevbogie, 2007, Ogbonmwan 2007). This underscores the invocations, songs and dances by *Igue* celebrants with lighted sticks, *Uwerhan* on the day of *Ugie Ewere* to *Emotan* shrine in Benin City and *Ogua-edion* in the villages, with the following songs:

Azen o-lubi rie (Witches O, go home, with Ubi)
Ogbovbimobo lubi rie (Killers of babies, go home with Ubi)

Oso o-lubi rie, . (Evil spirits O- go home with Ubi)

In contrast, then, for the pleasant and beautiful sister

Ewere de, kie ne'Ewere (*Ewere* is coming, open for *Ewere*)

Arie Ewere rie Ukpoghibivbore'mwan o (*Ewere* is taken home without causing chaos to people)

The use of water and fire, and in this case *Uwerhan*, have been documented by scholars to symbolise the getting rid of contaminants or pollution, and that by so doing, the environment is cleansed. Also cleansed are the peoples' minds and bodies (Lienard and Boyer 2006).

The exchange of *Ewere* leaves among the celebrants is heralded with the greetings of *Iselogbe*. *Iselogbe* is a unique form of greeting at this period (and no other) as it is a time of joy, merriment, and celebrations. Unlike other festivals in Benin, the *Igue* is not dedicated to any temple, shrine, or deity. However, they primarily rely on the following items for the celebration of *Igue*: cocoa-nut, traditional white chalk, life chicken, and hot drinks such as gin, and the locally brewed *kin-kin*. During the day, the events of the previous night and early morning hours (which would still be fresh in the residents' minds) may have set the tone for the celebrants to exchange cooked food, pleasantries, and visitations to friends and well-wishers. The rituals referred in this context tend to support the Wiltermuth and Heat (2009) contention that the group that can evolve synchronous rituals is better able to tackle everyday challenges than a group without it. Over the last decade, the event usually coincides with the other religious feast of Christmas, and the secular one of the new-year celebrations.

Even though the *Ikpoleki* and *Igue* festivals are annual celebrations with different motivations and purposes, ultimately they bring people (especially the residents from different walks of life) together and by so doing the bonds, solidarity and cooperation that exist among the adherents, become stronger. The statements made on Section 4.3.1 lend credence to these assertions. However, as has been alluded to by some of the focus group discussants, by failing to participate in these festivals the defaulting individual or socio-group is bound to lose many rights, and privileges.

Ikpoleki started during the time of Oba Ewuare, who is the owner of the shrine *Okhuaihe*, *Okhuaihe* is the shrine whenever it is started we call it the *Ikpoleki* festival. All sons and

daughters of the community both home and abroad gather to celebrate the *Ikpoleki* festival to receive their blessings. It is an occasion to request from the ancestor's supplications among other things. This is why you see us progressing.

- Excerpts from C1.5. February 22, 2017

The evidence of bonding between individuals and deities is expressed by the use of god as a guarantee, so that a party to an accord or agreement dare not default or abscond, and must accordingly swear to an oath at a particular shrine. This commitment appears to be achieved when incisions are made on the body and rubbed with a blackish substance mixed with the blood of the person asking for assistance. Also, some quantities of the pubic hair, and fingernails are taken and tied up in an element, and kept at the shrine. This episode is a typical ritual among people involved in human trafficking/sex or slavery abroad (Aljazera 2012). In case of a default, it is expected that the idol will fight its cause either by inflicting sickness or disease that may ultimately lead to death unless the defaulter pays the debts with interest.

The belief of swearing to an oath with substances taken from the body of the recipient runs deep as s/he is said to be under a bond which s/he must defray at all costs otherwise the person becomes subject to a curse. Whenever the defaulter happens to fall sick, the general belief is that the gods are responsible, or alternatively s/he is the cause of the misfortune. To be delivered from this bondage, many of the latter-day churches claim to have had a breakthrough, as in some of their sessions people testified to have been set free from bondage they had experienced in the past. On one such occasion, a sex slave victim who could not pay her debts got delivered by a former traditional assistant priest who later became a latter-day church pastor.

4.4.2 Bonding- attachment and commitment

Another aspect of bonding is attachment, where connection to the place of interest, quality of life, and relationship among residents take centre stage. To feel attached, is to feel safe and secure. However, an insecurely attached person is bound to have a mixture of feelings towards the reverence figure. In like manner, commitment refers to the extent to which a resident believes in or have confidence in the authority

of the local structure to actualise his/her dreams and aspirations. Therefore, about Figure 1.1, the combination of person, place and process with the necessary entanglements is in this instance at play. In Urora as well as other settlements in the country two systems of power and authority are at play; one traditional, the other one is representative government (a system introduced by the colonialists), especially in the manner substantiated by Ellis, (2016).

The traditional system of authority appears to be closer or to have more bearing on the inhabitants than the system introduced by the colonialists because of its grassroots nature. At the head of the system of authority is the traditional paramount ruler, the Oba of Benin, as recognised by the Bendel State Legal Notice 44 of 1979 published in the Bendel state of Nigeria extraordinary gazette No.51 volume 16 of 28th of September, 1979 (Akhigbe, 2017). The aspect of adjudication of justice is further taken to street/quarter level as the *okaidunmwunmwun* (Street/quarter chairman) preside over such occasions, and he also serves as a life member of the landlords and landladies association. In the course of the fieldwork, the researcher witnessed the resolution of a quarrel between two families which had lingered for quite a while (see Figures 4.8 and 4.9 which depict the event).

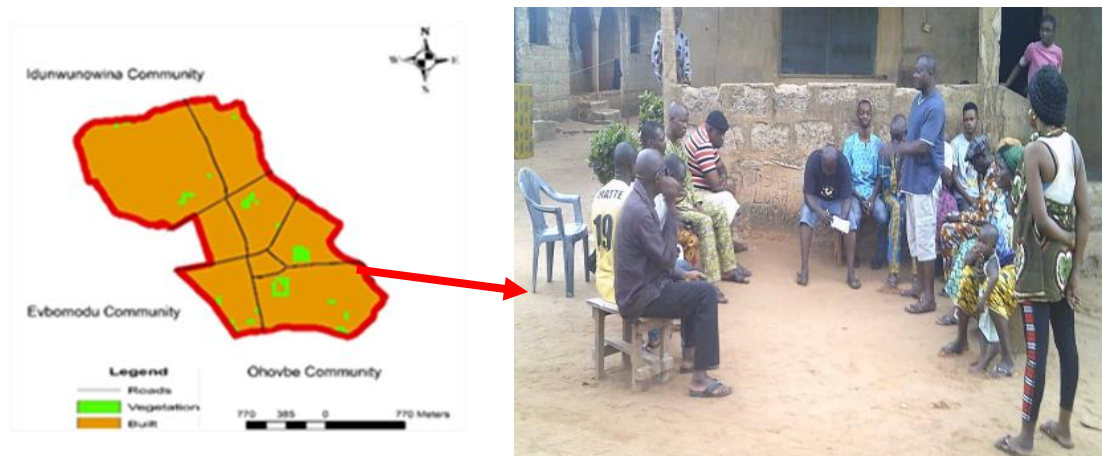


Figure 4. 8: During the adjudication session for peace to the warring families

The ability of the local structures to restore peace and tranquillity positively motivates/encourages the residents to be much more committed to the ideals of

peaceful coexistence. Two participants shared the following account with the researcher. Law enforcement agents are usually only required when there is bloodshed or severe criminal cases like murder or arson. However, in most cases, street executives can resolve some thorny issues between families and individuals. Even when a case is lodged at the police station, the *Okaidunmwunmwun* can request the case be transferred to him, and subsequently refer the case to the council of community elders to adjudicate on the matter.

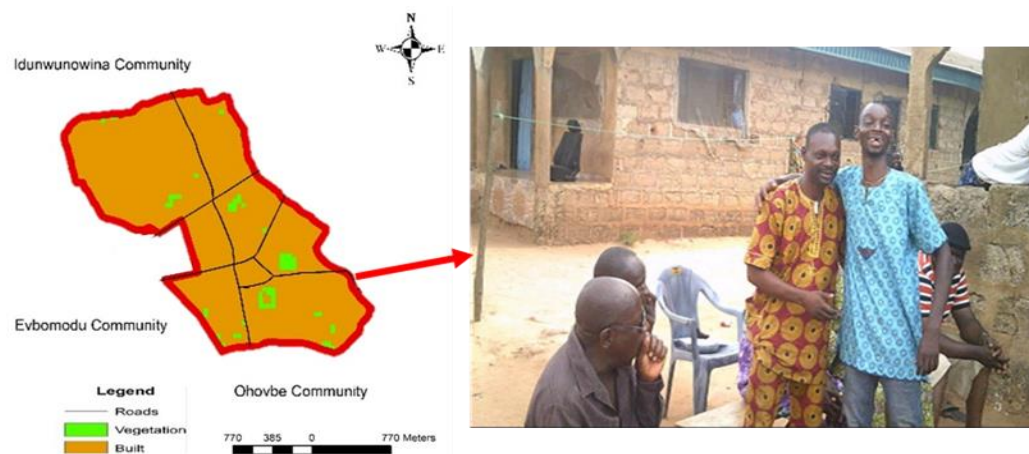


Figure 4.9: Peace restored as warring family members embraced themselves at the end of a mediation session

Within the local structure, there exists a power/administrative hierarchy from *Okaidunmwumwun* to *Ohen* and *Odionwere*. The formal law enforcement agents are, therefore, often viewed as strangers/outside as they neither understand the language nor the customs and traditions of the host communities. For the reasons highlighted above, the law enforcement officers can become an obstacle to the peaceful resolution of the issues in a conflict/dispute.

However, law enforcement officers are useful whenever there is bloodshed, and especially in cases of armed robbery. Moreover, after the prosecution of these cases, the community reserves the right to impose a penalty or levy, or extract an undertaking from the convict to be of good behaviour. The levy or fine could include cartons of beer, an alcoholic drink, and a live she-goat. In the case of robbery, the convict is likely to be declared a person of no good standing and should be avoided

(*persona non-grata*). If the convict is a house-owner in the community, s/he is assigned duties for the protection of the community. However, if the negative/anti-social behaviour persists s/he is asked to peacefully leave the village.

Other issues regularly discussed at the community executive committee (which holds fortnightly meetings) includes the management of flooding, improvement of the power/electricity situation, marriage, or death of a member, among others. The executives hold positions for the duration of four years and the key positions are chairman, secretary, financial secretary, and provost/speaker. In contrast, the positions of *Okaidunmwumwun*, *Odionwere* or *Ohen* are life positions as they are said to be ordained by God.

There exist other religious and ethnic associations that meet on a regular basis and whose ultimate aim is to assist in the welfare of its members. Key among these are the numerous church organisations listed in Figure 4.1, as well as the Esan (Sons and Daughters' Progressive Association), Ibo progressive association, the Hausa/Fulani, Yoruba, and a host of others. However, some of these groups hardly join their host community in communal efforts of development, which includes task/projects such as the maintenance of roads, management of flooding, among others. One of the reasons adduced by the non-cooperative party is that they have a home somewhere else, and that the place where they dwell at present (Urora) is a temporary residence only. Furthermore, when occasion demands or the slightest opportunity for a holiday or a weekend affords itself, they take the opportunity to visit their permanent homes. Within the same settlement are other factions who, because of their trade or as a way of life or religion, see themselves as different to the host community.

The activities of such 'outside' groups make the idea of good and responsible PA very difficult, and would not have satisfied the tripartite model of Scannell and Gifford (2010a), along with other researchers such as Kyle, Jun and Absher (2014) Ramkissoon, Weiler and Smith (2014).

The events considered in this sub-section appear to support some perspectives referred to earlier: Firstly, we can use the inter-bodily resonance hypothesis (Froese

and Fuchs 2012) to explain the quarrel between the neighbours, which was settled by the community under the leadership of the *Okaidunmwumwun*. For the period the misunderstanding lingered, the impression from resident A served as an expression for resident B and *vice versa* (see Figure 2.4). Above all, they satisfy the three parameters of inter-bodily hypothesis; it being embodied agents, vested with distinguishable ability to impact/influence each other, and being able to conduct and coordinate their affairs to produce an interactive process. In the course of the settlement, the chairman reproached some community members present for taking sides based on their relationships with either of the parties to the dispute.

Secondly, using the schemas and frames hypothesis, adherents of certain religious and traditional practices have been influenced by the injunctions of these beliefs/teachings. For example, the average traditional believing-resident, an indigene is of the opinion that there exists a bond between him/her and another indigene through bodily interaction (tactile, visual, olfactory) in their daily activities, stored in the long-term memory and renewed whenever they celebrate their festivals. At such occasions, when they meet and form an opinion which could be a shared definition of a situation could be how to relate with another social cultural group or a nearby community. This group culture was seen as the participants at a focus group dialogue made reference to a neighbouring community that is yet to perform festivals instituted by their forebears for protection.

Thirdly, in cultural neurophenomenological terms, using the somatic modes of attention of Csordas (1993), the parties to the dispute in one way or the other have had their attention through their sensory engagement. Through the inter-subjective world, they explored the relationship they have with one another as the assembly of elders gathered to resolve the dispute. Thirdly, familiar to both issues is the concept of embodiment as the perceptual experience and mode of presence and the engagement they have with the world, with all the trappings and possibilities summed up in the form of continuous relationship and the interactions between the brain, body and the environment. Thus, the agency of others is experienced in a bodily sense rather than imagined or inferred through a rationally reasoned process.

4.4.3 Bonding – involvement in communal affairs

Participation of residents in public affairs is an aspect of bonding that relates to the extent to which an individual or group of persons participate, more or less, in the activities that affect the entire community. Several factors influence the level of participatory group involvement. Key among such factors are: what the individual stands to benefit (as for Larson *et al.* (2015) these entail personal cost and benefits), the position of the individual, and whether it is morally the right thing to do. Whereas there are diverse ethno-religious groups with different objectives, within Urora settlement/community, the study was interested in the groups that have a communal outlook geared to improving the environmental, and health status of the inhabitants.

During the ethnographic field observations and interviews, some residents were seen doing collective work such as the clearing of debris and redirecting stormwater canals. A common feature in the settlement is the activity of some residents who had set ablaze the refuse transported by stormwater, and wind that had constituted a nuisance to their properties. The smoke emanating from the bonfire attracted the researcher to the scene, where some residents said the neighbours came together on a regular basis to attend to both flood and solid waste without assistance from the government whatsoever.

Problems like flooding tend to provoke cooperative behaviour and solidarity among residents, as failure to undertake pre-emptive actions could spell doom to their houses or business concerns. In one of the two focus group dialogues, members seemed to agree that anything posing a serious nuisance risk is dealt with collaboratively. In the words of the contributor:

Some years ago, there was a part of our street that was being eroded and the adjoining plot was not built-up, so people were throwing all kinds of dirt there. It was reported to us in the street meeting, so we took it upon ourselves to clear the place. Moreover, we made a 'law' that nobody should put refuse there again and the people that were very close to the problem area were singled out for rebuke. Also, we asked the *Okaidunmwunmwun* of that street to warn his people that we suspect that they could be the ones polluting and degrading the area. That any waste we see there again we hold that road-residents responsible. Moreover, that measure we took helped us to manage the situation. What I am trying to say is that I believe we can go through the *Okaidunmwunmwun*...

-Excerpts from A1.1, a focus group discussion. February 18 2017

At another conspicuous location in the community, by the *Uyi-Edo* petrol station along the Benin-Abuja express-road, the same cooperative involvement of community members was observed, this time on a large scale. A focus group discussant captured this event in response to a specific question during our engagement; his words were:

I want to give an example of Uyi-Edo dumpsite, an unaccredited dumpsite passing there stinks so when we started evacuating the waste we had to bring in a bulldozer to pack it before bringing sand to cover it that is what can be done to an environment when you do not keep the environment clean. Also, there was this problem of abattoir when the wind blows the stench comes out, so the community came together and took the case to court, if it were an environment where nobody cares, the smell would be established or becomes a permanent feature and nobody would be comfortable.

-Excerpts from A1.2, a focus group discussant, February 18 2017

While highlighting the effects and benefits of group involvement where members transcend their ethnic-religious-social groupings in giving the environment a facelift, there are problems with some community members from a particular ethnic group. Either because of their trade or religion or both, the cattle herders whose abode is to the eastern part of the second half of the settlement, have the habit of uncooperative behaviour with regard to their host community. In an interview with one of the heads of households, his contribution was:

When we call for meetings they (cattle rearers) do not come. To the extent we send people to let us know why they do not come to meetings or cooperate or join us to make the community better for everyone. They still did not listen to us, yet their cattle destroy our farmlands and gardens. We have left them.

– Excerpts from a head of household, February 19 2017.

Apart from this singular incident, which exhibits an instance of non-belonging to the detriment of the community, activities regarding involvement in communal affairs appear to have improved considerably compared to some neighbouring communities. Given the different ethno-religious organisations and the innate/existential zeal for any individual to survive, the inhabitants have been exploring opportunities of deepening their bonding from the perspective of the socio-religious rituals and practices. For example, the monthly ethnic societal meetings and the social/religious church groupings are avenues for on-going socialisation towards a coherent community.

One of the few theoretical concepts that readily connects to the above observations is Husserl's idea of entering into a relationship with others, and sharing a multiplicity of states such as different emotions, body schema, our being subject to pain and somatic sensations (Thompson 2010). Urora residents experience these sensations when they engage in their diverse social-cultural functions, and with it comes a consciousness that makes a typical resident strive for intentional fulfilment, which can be linked to transcending the self for the good of the larger community. This study can describe the object-directed intentional fulfilment through two concepts; *noetic* and *noema*. *Noetic* modes inform the study about the ways in which Urora residents experienced their habitat through stimuli such as stench, the eyesore and negative image created by the indiscriminate dumping of refuse on the roads which are also serrated by erosion and flooding. In contrast, the *noematic* description portrays the decomposing refuse and the neural correlates of consciousness of the residents when they are impacted by the stench they experience.

4.4.4 Belonging-belief in community rules and connectedness

One of the key components of PA is the experience of belonging to a caring community. In the course of the ethnographic observations at Urora, it became clear that the population of the natives is dwindling as most of them have gone far and wide in search of 'greener pastures'. This push-factor is due to a dearth of industries to employ the teeming population. By far the most critical contributing factor is the expansion of Benin City, where the acquisition of residential accommodation has become a daunting task. Expectedly, as one of the adjoining settlements, Urora has to contribute towards filling this void.

From the ethnographic study it emerged that in the case of a bereaved member, heads of households pay mandatory levies which are reviewed from year to year. Here is a related account of one of the focus group discussants:

like in our street have social programmes like when a member dies the collection of a fine which is compulsory and who does not pay on time attracts a fine. It as simple as 'you do for me I do for you'.

-Excerpts from A1.1 a focus group discussant, February 18 2017

During the second focus group discussion (where the majority of the members are ATR adherents), the import of the contributions from one of the discussants on the *Ikpoleki* festival reflects a philosophical/transcendental belief when he said-

Personally or individually you will be moved to come when the time is close to performing the ritual, you will not be forced something in you will keep troubling you because that shrine gathers it is children all over the world for the festival. As a freeborn of this community, you will not be left out you will undoubtedly come. This event attests to the cooperation we have because our shrine unites all the community members together.

-Excerpts from C1.5, a Focus group discussant, February 22 2017

The above statement shows the extent to which adherents of the *Ikpoleki* festival are connected and submissive to their religion, with related compliance to the ideals of the key occasions and ceremonies connected to it. This attitude of submissiveness is strengthened by the belief that as members of their community who are involved in its everyday affairs it behoves them to take pro-active/preventive measures to overcome upheavals. One of the means towards this goal is to proactively engage in related festivals and ceremonies.

4.5 INDIVIDUAL AND COLLECTIVE AWARENESS OF WASTE CONDITION AND EFFECTS ON BELONGING

This section presents data and analysis related to the individual/collective awareness of the waste condition and how the related experience affects the sense of belonging of members of the community. The area is characterised by ineffective waste disposal practices such as shallow burial, open-air burning, disposition at street corners, in storm waters, and public open spaces. For this reason, disease-carrying vectors such as housefly, rodents, and mosquitoes are prevalent in this locality. Besides, due to the low-lying topography of the area, the incidence of indiscriminate disposal has significantly escalated the intensity of the frequent flooding experienced annually in the area. Table 4.6 presents the data collected in this regard.

For clarity, in the course of the ethnographic observations, focus group discussions and one-on-one interviews were held, as summarised in Table 4.6.. The presentation is subdivided into three sub-sections as follows:

- Individual awareness of the waste condition

- Collective awareness of the waste condition
- Waste condition and belonging

Table 4.6: Summary of individual and collective awareness of waste condition

PA-Sub-question	Ethnographic observation	Focus-Group/Workshops	Community liaison facilitator	Household interview
What is the level of individual and collective awareness of waste-condition and how does this awareness influence the sense of belonging?	-Group of some individuals could be seen although at irregular intervals doing community work like clearing, sweeping and open burning	-There is a correlation between bad behaviour and environmental degradation -No one is comfortable we need the cooperation to make others do what is right.	-Some residents have started relocating because of the twin problems of poor waste disposal and erosion	-Causes diseases we have made efforts transport it far from our residences

4.5.1 Individual awareness of the waste condition

Given that on a daily basis it has become customary/routine for most households to participate in the tidying up of their domains (see Figure 4.3), the study focus now shifts to areas where these householders dump their waste. Starting from the back of the house, the waste dump (*Otiku*) is a location where all manner of debris is deposited, as it receives garden refuse, kitchen refuse and other unwanted household items. Most of the residents living in older houses are in the habit of this practice. Within this vicinity also, is the location of the outdoor kitchen, bathroom, toilet and the small garden that possibly emerged by accident, through the extra fertility sustained by the accumulation of kitchen waste and bio-degradable refuse.

When the *Otiku* is exposed to the vagaries of weather conditions, the putrescible items from the householders undergo decomposition and releases foul odours in sufficient intensity to make one either block his/her nostrils or stop breathing momentarily, or quicken his/ steps to leave that vicinity. The stench impacts negatively on the olfactory processing faculty which monitors the intake of airborne

agents. The whole experience integrates the perceptual processes of auditory, olfactory, gustatory and visual domains which are intensely engaged. Given this condition, one of the interviewees gave the following account;

When one experience such thing, one can quickly fall sick, and you will not be healthy, you can never be healthy, and you will not be comfortable with that smell. Until you vacate it or tell the people concerned to come and move those things away before you are comfortable. The people living around can never be sound until they evacuate the smelling refuse away. So one is not pleased with that smell. So one is not comfortable with dirt.

-Excerpts of C1.5, a focus group discussant, February 22 2017

Unfortunately, the waste is neither separated nor has the 3Rs (Reduce, Reuse, Recycle) taken root within the community. Some of the residents have been suffocating themselves as some alluded to the fact that they always lock their doors and windows to ward off the effect of the stench emanating from the indiscriminate waste disposal.

According to what my brother is saying I was not here then I used to come from the town when the direction of the wind is towards my dwelling the stench is always unbearable. That's the only way I can describe it, my wife has bought different air-freshners although my house was far from the place when the wind blows towards my direction, breathing becomes a problem we had to lock all the windows it was very unbearable and uncomfortable. It is better somebody to experience it than begin to describe it.

-Excerpts from A1.1, a focus group discussant, February 18 2017

In the one-on-one interview with heads of households, an interviewee who resides in or has a common boundary with a vacant/undeveloped land, has this to say-

Given the public health implication of indiscriminate waste disposal as some waste are dumped haphazardly, I am not comfortable been that you are not the only one badly affected, what do you do? If others can cope apart from the light (electricity) thing, the road thing, the waste disposal too apart from the area you are looking at we do not have a waste manager covering this area. So we know how to dispose of our waste, and at times you wake up in the morning, for instance, this next compound close to me I normally clear the sides because of rodents and reptiles. I woke up one morning, to meet that somebody you know has thrown whatever there, of course, it is somebody in this area. It is because he or she did not know where to put his refuse, he decided to put it here. What I used to do was a kind of clear a path, but now I have to make it more extensive and wider so that if the person refuses to stop it would not be so close because of the smell and the nuisance...

-Excerpts from heads of households 3, March 4 2017

4.5.2. Collective awareness of the waste conditions

Earlier, in Section 4.4.3, the cooperative attitude of group participation in communal matters was discussed where reference was made to collective efforts towards addressing the waste problem. This time attention is directed towards the collective awareness of the activities of accredited waste managers and diseases caused by indiscriminate waste disposal. In one of the focus group discussions, participants shared their views on how accredited waste managers fail in their responsibilities-

There are some places covered by the waste managers, and there is some part of the community that is not included because of the terrain (seasonal roads), so it becomes difficult for the waste managers to access those people. So they (residents) dispose their waste early in the morning on unauthorised places, but for me, A1.1 the waste managers covers my compound. I have a dump in my compound, so they come once or twice in a month to evacuate it. Twice a month was the minimum standard the government gave, but it has become the maximum standard. (Cuts in) which is actually inadequate. You have heard what my friend here said areas that are not accessible due to bad road and other reasons and people that live in such areas could not afford to leave their waste in their houses. They must find a way to dispose of these wastes often some undeveloped places dispose theirs in moats and places supposed to be for erosion control, tourist centres have become a site where people commonly and freely to dump their waste.

-Excerpts from A1.1 and A1.3, focus group discussants, February 18 2017

One of the key informants contended that if the unwholesome attitude of some residents towards waste disposal is not checked, it would negatively influence/impact on other residents:

Urora area is pro-erosion there used to be many moats in the past some have been covered while others have been built upon this practice has impeded the flow of stormwater. People tend to throw things everywhere.With the present efforts by government coming to your house to take the waste from you there will be a severe improvement. With the Hausa merchant that rear cattle produce waste a lot and channel the debris to the moat and the rains transport most of the waste, they transported to other areas. This dangerous practice could motivate other people to pollute and degrade the environment.

-Excerpts of key informant 2, February 13 2017

While some residents did applaud the government for its initiative to collect the solid waste directly from residents; others are of the opinion that given the low purchasing power of an average inhabitant as well as the absence of waste bins (or a communal waste dump) has largely contributed to the intolerable degradation of the environment. To lend credence to this view, a participant, who was also one of the accredited waste managers, made the following comments:

.....when the government were closing the burrow pit by Uyi Edo filling station, it was a tug of war with the people of Urora and measures were taken to stop the disposing of waste by the residents. Measures like: the people where flogged, driven and many wheelbarrows were seized, and some were arrested, but the residents continued. The residents want to dispose waste, but we have not been able to design and discern the kind of system that the people like since they like communal way of disposing, the government should make the waste managers to pack and dispose of the waste on a daily basis and few people patronise the waste managers.

Excerpts of Key informant 1, January 19 2017

All the interviewees agree to the fact that indiscriminate waste disposal affects public health and safety, and contributes indirectly to flooding. With the wet season accounting for seven months of the year, coupled with increasing population and on a terrain that is relatively flat the worst is yet to take place. Another aspect of knowledge that deserves mentioning is that solid waste does not occupy all isolated spaces; some meaning making areas are insulated from the madness of indiscriminate waste disposal because they transcend the ordinary (places that harbour the *Aroebiemwen* shrine, *Ogbiro* tree and other sacred grooves within the vicinity). Such areas are permeated with spiritual significance and therefore, considered sacred (See Figure 4.10). This strongly resonates with the view of the embodied mind which phenomenologically links the brain areas underpinning related states such as fear, anger and language, among others.

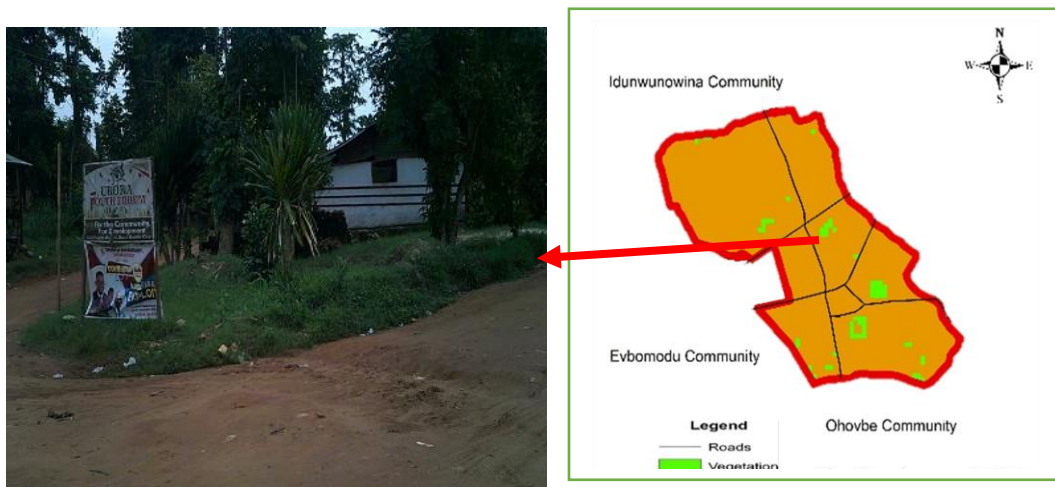


Figure 4.10: The foreground of Aroebiemwen shrine, a place/meaning-making centre.

The average religious person who has a predisposition for sacred objects is likely to sense such an area as directly linked to God. (Saroglou 2011). Through sanctification, people tend to be satisfied and care for those things they hold sacred. In turn, such objects that provide a sense of identity, cohesion and continuity can also comfort the people in times of upheavals. For this reason, people suffer a loss when their sacredness is violated (desecrated) and would, therefore, be unhappy with the desecrators, point of connection between the human and the divine. In a religious language, the desecrators would have committed sacrilege.

Figure 4.10 represents a sacred location which is in contrast to Figure 4.11. Figure 4.11 presents a desecrated site. The would-be polluter(s) would be afraid to desecrate the sacred place for fear of the resultant retributions.

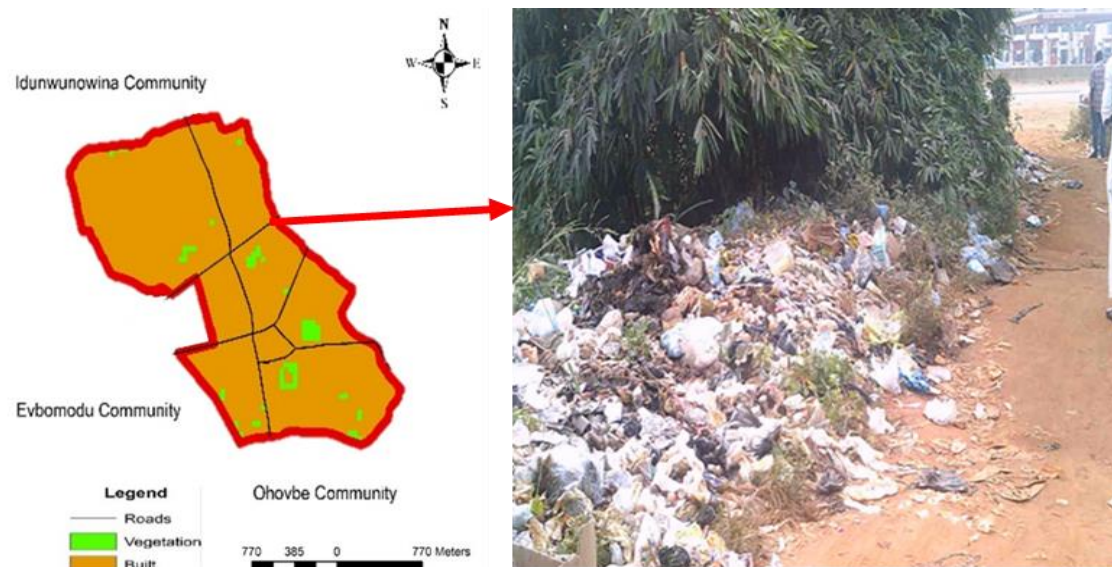


Figure 4.11: Almost at an intersection isolated like Figures 4.10 and 4.7 but littered with refuse

4.5.3. Waste condition and Belonging

One crucial issue that requires attention is that given the settlement's gory state of environmental degradation, and an absence of satisfactory strategies (plans to address the problem of hopelessness), would the residents still be motivated to do something to alleviate their situation? Would the residents always be proud that they

are from this locality? The answer to the preceding is more of a 'yes' than a 'no'. The reasons for this position are stated below:

- Mutual fixation
- Putting the waste to productive use

Mutual Fixation

Most of the residents have become so emotionally attached to their present abode that re-locating to other settlements does not commonly present itself as an option. The fact is that some of them are indigenes, while others have made strong social bonds. However, this is not to say that everything is in order, as some residents have expressed their displeasure. This is reflected in the response of one of the participants when asked if environmental degradation is forcing residents of Urora to relocate:

A lot. The man that was building this house approached us to buy his property on this other side the property owner relocated. Across the fence, an Hausa man approached us to buy the land because as big man he equally relocated. There are some other parishioners and one or two others because of the squalidity of the place; the place looks unkempt. For fear of contracting diseases as a result of the stench from the cattle market and the activities of cattle rearers, many people would like to relocate even myself talking if I can have my way. If you quantify the waste they generate is about 60% of what the refuse from the Urora community.

-Excerpts from a key informant 2, February 13 2017

The state of environmental degradation is multi-faceted especially with about 90% of the land area in Urora having been built up. Even the moat which has served for long as a tourist attraction has witnessed a series of encroachments to the extent that when it rains, a substantial percentage of the area is submerged. Figures 4.12 and 6.2 show the resultant state of flooding in the locality. Even the Benin-Abuja express road with its raised/high base is without adequate drainage. Rather than assist the community, the Federal Government has compounded their problems by diverting additional stormwater to the community. The reasons why most of the people have not relocated could be related to the economic downturn they are experiencing, while others would like to maintain the status quo as Urora community is home to many prayer houses, churches and ATR meaning making structures.



Figure 4.12: A twin problem of solid waste and flooding along old Benin-Auchi road

Putting the waste to productive use

Some of the residents have started putting solid waste to use, although on a small scale. As the locality can boost some farmers with cassava peelings to feed a piggery farm, so there also are valuable scrap aluminium items of various shapes and sizes which the residents can sell to some intermediaries for better remuneration after sorting. Figure 4.13 shows a push-cart waste collector in the guise of “condemned-iron, condemned-oil” which he collects as valuable refuse for resale.

Such collector-scavengers move from house to house and collect any refuse at a cost lower than that of the approved waste managers. They therefore have started to see waste from the perspective of generating funds through adding value to what would have been consigned to the waste bin or illegal dump site.



Figure 4.13: A push-cart waste collector/vendor in search of materials with intrinsic value to extract, process and sale.

4.6. LIVED EXPERIENCES AND CONSCIOUSNESS OF HEADS OF HOUSEHOLDS ON PA DIMENSIONS

Based on phenomenological and neurophenomenological perspectives on PA experiences/practices, it was possible to derive some significant statements and attendant meaning from the five heads of households for each of the parameters as seen in Table 4.8. Given the data emerging from the phenomenological approach in Chapter 3, responses from the five heads of households interviewed, (after shadowing each of them for five days) corroborated the findings of Coral-Verdugo (1997) Chao and Lam (2011) with regard to their observed behaviour related to waste disposal are better indicators of actual behaviour than self-reports.

With this proposition as the starting point and grounded in the fact that phenomenology is the attempt to understand, adequately describe, analyse and interpret the consciousness and lived experience of an actor without addition or subtraction, some of the significant statements derived along with meaning units for PA as the dialogue took place are presented in Table 4.7. From daily prayers and

family hygiene to burial and marriages, some commonalities were witnessed and observed.

The intention of families and the community when coming together is not necessarily to entertain themselves but peaceful coexistence and stabilisation or to facilitate mutual practices for an amicable status quo which, according to Husserl demonstrates the state of being-in-the-world and part-of-the-world. From this perspective, residents do not see themselves as separate from nature, and the dichotomy of subject-object does not arise. Preferably they perceive themselves as extensions of their environment.

Table 4.7: Some significant statements on PA activities by Heads of Households

Significant statement	Re-formulated meanings from the sample of responses
<p>PA sub-questions</p> <p>On commonly shared rituals at family and community levels</p> <p><i>When we talk of family rituals we talk of prayers in the morning come together as a family, we pray, to keep the environment and the house tidy, preparing of meals breakfast, lunch and supper. I serve and worship God through Okhuaihe deity and the Edion my forefathers.</i></p> <p>The other leg is community shared rituals.</p> <p><i>We talk of festivals celebration of festivals; like Christmas, Salah or Easter. Keeping the environment clean, celebration of marriages, light celebration, cultural festivals (Igue and Ikpoleki). Like the free thinkers they celebrate their rituals, the good thing is that everybody come together voluntarily anyway.</i></p>	<p>Coming together in the mornings to pray before taking up other household chores</p> <p>Festivals, ceremonies, celebrations are activities that involve group of persons rather than individuals</p>

<p>Describe a particular ritual of your choice</p> <p><i>Coming together every morning to pray is a thing I will do every day. We recognise and thank our Maker for the protection for the night and put our going out and our coming in his hands. So we must pray every morning the family cannot do without that. In the morning we sing praises as the head I bring out prayer points and commit what we want to do today in his hands then ask for protection. I lead the prayer points.</i></p>	<p>Prayer as the key to everything</p>
<p>On benefits derivable from the occasion</p> <p><i>Wonderful! Many benefits, it has even become that if you do not do it you feel empty that you have not armed yourself for the day, having prayed that you are protected and have that sense of God's guidance you feel that God is there with you always in anything you are doing. There is that confidence that you have that you derive from such exercise. Any day you do not do it you feel you have done something terrible to yourself once you do it you leave the house with confidence believing that God is in charge of everything that is going to place that day. So there is that satisfaction, confidence of yourself that God is in charge. That you have done what you are supposed to do with the feeling that you are highly protected and fulfilled as well.</i></p> <p>On why engage in them, and if not, what happens</p> <p><i>We always pray that we do not have premature death eh eh eh. If someone dies at the age of forty, forty-five or fifty that is premature death. That is not God's call that is Satan's way. If you believe in God, He will show you like spoke to you; you will not get premature death. What you are saying in effect is</i></p>	<p>Peace, joy, harmony and satisfaction is derived through prayers</p> <p>Long life and prosperity otherwise life is short-lived</p>

that if someone fails/refuses to engage in it one of the effects is premature death.	
--	--

On family and community rituals: All the families interviewed agreed on the need for the early morning prayers and worship. The account of a middle-income group head of household of 60 years, a non-indigene, Christian with a family size of five, a house owner who has spent twelve years in the settlement was particularly enthusiastic about what he does on a daily basis. He takes the lead in calling everyone to worship as he takes particular interest in the choruses and the prayer points. Through this event, he is of the opinion that they are getting closer to God than ever before and for so doing, he and his family are rewarded physically, mentally, materially and financially. Through this early morning event according to him *'he is fulfilled.'* An ATR worshipper of age 50, an indigene house-owner with a family size of eight, a low-income group earner has this to say; *"I wake up in the morning, my first thing is to thank God for making me stand up to see the beginning of a new day."* On the other hand, an ATR worshipper a middle-income earner with a family size of eight says *"I have my ancestors I serve and worship, the Okhuaihe deity and the Edion and make sacrifices every fifth day"*.

Regarding community rituals, it is structured along religious lines as the participants were quick to give examples of the famous festivals and ceremonies. These include the Christmas, Easter, *Eid-Malud*, *Eid el Fitr*, the *Ikpoleki* and *Igue* festivals. In this same category are the marriages, the naming ceremony of a newborn child, burial of the deceased member or relative. A household/owner, low-income group earner, farmer of about sixty-five years, who has lived in the settlement for not less than fifteen years, commented that the best community ritual of his choice is marriage for the simple fact that it brings people who love themselves together, their families, and there start a family the fruit of their union.

On prayers and the benefits derived from it: Prayers happen to be the rallying point for all the householders interviewed, irrespective of the religious inclinations. The 45-year-old Muslim, low income, a family size of eight, lives at Aideyanba

quarters whose main trade is the sale of cows was more forthright when he said that praying five times a day facing the East is not negotiable as he begins his day as early as 4:30 am. A 50 -year-old, medium-income, house owner and, Christian contractor, with a family size of seven, has this to say on the benefits derivable from prayers- *“So there is that satisfaction, confidence of yourself that God is in charge. That you have done what you are supposed to do with the feeling that you are highly protected and fulfilled as well”*.

On what happens if you fail to engage in family and community rituals:

The participants were unanimous on the fact that that there are serious repercussions both at the family and community rituals. A fifty-three-year-old, Christian, farmer indigene a former ATR adherent, who has spent the better part of his life in the settlement, whose household size is seven commented thus- *“If you believe in God, He will show you many things, like speak to you, you will not get premature death”*. Moreover, yet another head of household of five, medium-income of 60 years of age who has spent twelve years in the settlement had the following comments:

“Well like the family rituals if you do not engage in them, the family head will raise an eyebrow already it is part of the discipline you have to instil in the family. Every member must participate. As for community rituals, there are rules and sanctions if you do not participate it gets to a point nobody comes to you. You can be ostracised from the community, or you will be fined”.

As alluded to earlier the motivating factor is the fear and awe ascribed and the transcendental belief that the unseen God, the maker of heaven and earth shall recompense the true worshippers.

4.7 SUMMARY OF FINDINGS

In this chapter, an attempt has been made to bring together concepts and constructs in religion, sociological and psychological dimensions/functions (searching for meaning, experience and truth, identification and belonging to ethno-religious groups) as it affects the residents of Urora community. They engage with these issues against a backdrop of the lived experiences, consciousness and the neuroscientific implications of the residents as PA and indiscriminate solid waste has

brought into sharp focus the cultural/traditional activities, and also the religious dimensions which are integrated by rituals as other details for its analysis and interpretation in this section of the chapter is summarised in Table 4.8.

Given this background in relation to the overall research question on the underlying drivers of the contradiction between strong PA and weak HHWM/disposal as well as the related assumption, the following is the summary of findings;

- Religion, rituals and community
- PA and waste condition

4.7.1. Religion, rituals and community

The community is a multi-cultural/religious social group, where the different ethnic groups, cultural affinities, and religious persuasions gravitate and try to make person-to-place bonds that develop because of emotional connection to, and meaning and understandings of their place of abode. A common denominator that brings all the contending issues together is rituals. From the study, it was discovered that some of the residents are quite religious and, in the process, submissive in their thoughts during their sessions, in addition to being inclined to a traditional belief system in their approach to issues. However, some of the residents who are non-indigenes, and also because of trade and religion, see themselves as not belonging to this settlement. By so doing, they neither hold meetings nor contribute in cash or kind to the development initiatives of the locality. Instead they claim to have a home somewhere else and for this reason, excuse themselves from communal obligations. What they do according to Hardin's principle (Ostrom 2008) could be construed as 'free-riding' on the efforts of others.

The study reveals the proliferation of religious/prayer houses, especially for the Pentecostal churches. This would seemingly be an indication of the hyper-religiousness of the inhabitants. Within this context, and in agreement with Saroglou (2011), the issue at stake is the self-transcendent experiences that bond the individual to what s/he perceives to be a higher order reality within him/herself, others and the environment.

Table 4.8: Summary of PA activities with theoretical/interpretative perspectives

Research sub-question	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from Neuroscience/region of central nervous system
What are the commonly shared rituals at family and community levels in the settlement?	<ul style="list-style-type: none"> Preliminary data on participants Daily prayers and sanitation Weekly prayers, 	<p>Life-world, inter-subjectivity</p> <p>being-for-itself, but a being-for-the-other</p>	Relationship between cognition, experience, consciousness, embodiment and culture	<p>Mirror neurons, goal-directed actions, action perception at the Broca cavity of the brain olfactory monitors neuron of the nose affected from the generation of dust and registers at the olfactory bulb.</p> <p>Habitual responses employed during prayers – cortex of the stratum and Basal ganglia</p>
	<ul style="list-style-type: none"> Compound hygiene/sanitation 	-do-	-do-	<p>Visual perception, olfactory monitors affected because of stench.</p> <p>Somatosensory top-down modulation, orbitofrontal cortex along with other cortices are affected</p>
	<ul style="list-style-type: none"> Weekly gathering church service/programmes 	being-for-itself, but a being-for-the-other	All human perception and experiences are mediated and integrated through the central nervous system explains many of the cross-culturally aspect of religious beliefs and imagery	Goal-directed behaviour, loud music negatively affect auditory neurons of the brain
	<ul style="list-style-type: none"> Marriages, burial, and festivals 		Somatic modes of attention.	Human visual cortex with the aid of fMRI,

Research sub-question	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from Neuroscience/region of central nervous system
				prefrontal and posterior visual cortex, in our top-down direction
What is the significance of these rituals in enhancing bonding and sense of belonging in the settlement, in Urora and Benin City in general?	<ul style="list-style-type: none"> Bonding Emotional link to community attachment and commitment involvement 	Husserl one-in-the-other. Indeterminacy collapse duality between object and subject, self and other and mind and soul	Csordas' Somatic modes of attention	Arousal neural activity in the left amygdala, happiness evoked in media OFC
	<ul style="list-style-type: none"> belonging belief in community rules connectedness 	-do-	-do-	-do-
What is the level of individual and collective awareness of waste-condition and how does this knowledge influence the sense of belonging?	<ul style="list-style-type: none"> Awareness Consequences of indiscriminate waste disposal. Resource value of waste 3Rs, composting 	Analytical categories such as perception and sensation to interpret embodied experiences is imprecise	Csordas' Somatic modes of attention, embodiment	Visual perception, shape, colour occipitoparietal "where" pathway contains shape information and the Occipitotemporal "what" pathway contains location information.

Given this experience, with the study location, ritual has been identified not only as the giver of meaning to an event or a ceremony, but also as the one that creates, sustains and integrates continued fellowship through which it fosters bonding among the participants and congregants. The *Ikpoleki* and *Igue* festivals are examples from the settlement that readily comes to mind as Tables 4.3 to 4.6 present in more detail. The weekly church services also follow a pattern of ritual which has been identified to follow a particular order as commonly characterised by scholars (rigid in performance, stereotypy, and feeling of compulsion, specific themes among others): see for example Lienard and Boyer (2006).

This chapter has presented a proper description and adequate understanding of experience, which were integrated into a neurophenomenological perspective of the observed world as seen from the family and community prayers, festivals, marriages, burial, bonding, belonging and believing. In neuro-scientific and phenomenological terms, the internal events that underlie experience, attention, imagery and perception were considered as the brain-body-environment, as (embedded) embodiment of a singular unified experience. In this context, therefore, Thomas Csordas's (1993) somatic modes of attention with its accompanying principles were corroborated through primary data observed of marriage, burial and festivals. The practices can, therefore, be deemed to support Csordas's position. Here the specific example in the traditional context is the young lady who is given out in marriage, respects not only the husband but the husband's extended family as well, and, likewise, the man. In this context, embodiment serves as the mutual existential grounding of culture for both the man and the woman.

However, irrespective of the outlined advantages, it appears the relationship between some of the residents and the environment, and for many others, the feelings and attachment to the environment, are still in the mould of the subjective-objective perspective, since some of the residents do see themselves as separate from their environment. From a phenomenological perspective, even though the self and environment could conceptually be perceived as two, or separate, the self is existentially as one (people-environment intertwinement). The lived togetherness cannot, therefore, be phenomenologically be separated or divided. Instead, it is lived

as a body-brain-environment (embodiment) experience. From the data tools applied in the field, it became clear that the residents focus on solid waste as an external and objectified problem, rather than experiencing it as engaging their bodies and their existential experiences.

Furthermore, Merleau-Ponty's proposition that perception begins in the body, and through reflective thinking ends in objects, has brought clarity to the fact that the empiricist position that the same stimuli produce the same sensation, is imprecise and inadequate. Concerning bonding in the community, the existential experience guides towards an understanding that other residents feel like me, yet distinct from me as we experience the bond between ourselves, rather than inferred towards an experience. This aspect of inter-subjectivity is experienced through the activities of bonding, involvement, and emotional experience as reflected in regular goal-directed meetings of the church, and cultural, societal, landlords' and landladies' meetings/activities. All these findings appear to corroborate the claim made long ago by phenomenologists that sense of place (PA) is a natural condition of human existence – that dwelling presupposes being inter-twined and inter-woven (Seamon, 2011). Furthermore, it means that everything that exists does not exist alone but should instead be viewed as orders within a web of inter-connecting relationships.

4.7.2 PA and waste condition

The study brings into focus the emotional and sentimental attachment the residents have with themselves as activities and ceremonies take place in the community weekly, or fortnightly. During these occasions, the residents tend to outdo one another in dance steps, or dress code. However, this energy and solidarity of residents are seen to contradict their immediate environment as heaps of refuse are seen on a daily basis in conspicuous as well as hidden locations. Even the tradition and religion which the majority of the residents subscribe to preaches against filthiness, yet numerous points of the settlement are perpetually littered with waste. Despite the seemingly pathetic state of the outdoor environment/places, there are still vestiges of the 'old order' which is reflected in everyday practices such as outdoor sweeping, especially for locations with bare soil.

While residents express concerns about the inability of the appointed waste managers to meet the minimum twice monthly waste collections, perhaps the more fundamental aspect is the conspicuous absence of refuse bins, and transfer stations. The absence of such basic public infrastructure has impacted negatively on the management and provision of services within the settlement. Rather than take advantage of the situation, the residents' inability to sense the 'worth' of the waste through the 3Rs, and instead continue with the primordial waste disposal practices of open-air burning and illegal dumping, they thus contribute further to the degradation and deterioration of the environment.

Arising from Figure 4.2 (the Satellite imagery of 1997 and 2017), the deterioration and the degradation of the environment is worsening as the City continues to be urbanised, with its attendant increase in population. Through this process, the natural habitat has diminished considerably, to the extent of even consuming areas previously considered to be sacred. Worst of all, these locations are left desecrated, and littered with refuse on an increasing basis.

Further deterioration in this inhospitable scenario arises from the seasonality of the roads within, and throughout the settlement as most of them are impassable for at least seven months of the year. The absence of an adequate drainage scheme has further severely affected the physical environment of the settlement. Worst of all is the overbearing attitude of both the Federal and State Governments. An example that readily comes to mind is the resurfacing, and expansion of the Benin-Abuja express road, without factoring in roadside drains to channel surface and stormwater runoff. The effect is that during the wet season heavy rains lead to perpetual flooding for the adjoining settlements.

From the preceding, it is increasingly apparent why the environment is tending towards abandonment, being forsaken, and is appearing depressed. For the foregoing reasons, instead of being a place of abode and attachment, it has become a situation and place of disillusionment, alienation, and detachment for the residents. It was acknowledged that there is a limit to the extent to which the residents can cooperate to assist themselves on an individual basis, beyond their hedonic/personal-gain goals. Normatively speaking, no householder will lift a finger when it is a community project

unless there are personal pecuniary considerations and benefits attached to it. However, solid waste is a community affair, and with the help of the host community and especially the traditional organisations, the settlement can achieve an effective solid waste management system if the potential opportunities are appropriately valued, and harnessed.

This chapter explored the brain-body system as inseparably embedded to derive insights on the causal and conscious relationship between mind, behaviour and brain in the PA, PEB, and HHSWM scenario of the Urora settlement. Pursuant of this objective, the study implicates the central nervous system that is made up of the neurons, cortices, and sensory organs of the residents, while developing an understanding of the effects and consequences of indiscriminate waste disposal practices and behaviours within the community, and settlement.

CHAPTER FIVE

PEB CONSTITUENTS, WASTE CONDITION AND PUBLIC HEALTH

5.1 INTRODUCTION

Arising from Chapter 4, which addresses the apparent strong social PA leanings, this chapter addresses the three research sub-questions under PEB which pertains to the existing indiscriminate solid waste disposal practices, its composition at generation and disposal points, and how the waste condition affects the public health, and infrastructural facilities. By adopting the principles of phenomenology and neuro-phenomenology as mediated by insights from neuroscience, the study established the connection and interrelationships through the residents lived experiences and consciousness as revealed from their life-world and inter-subjectivity.

The PEB attributes concerning waste disposal, reveal the ‘what’ of the characteristics the key related practices which are the open-air burning, homestead waste dump, shallow burial, and indiscriminate waste disposal in public open spaces, which indicate that responsive PEB practices are yet to take root. For example, separation at source is not practised in this settlement as bio-degradable and non-degradable wastes are lumped together. For this reason, the 3Rs, composting, valorisation (as informed by the resource value of solid waste) are yet to be tapped and harnessed. However, as the country experiences a downturn in the economy, incidents of waste-scavenging and salvaging is on the increase. One of the negative outcomes of indiscriminate waste disposal is the prevalence of public health issues such as malaria fever, dysentery, and diarrhoea.

The Chapter is sub-divided into five broad areas as follows:

- Data overview and presentation
- Indiscriminate waste disposal practices in the settlement
- Composition of waste at generation and different disposal points
- Waste condition’s effect on public health and infrastructural facilities
- Lived experiences and consciousness of five heads of households on PEB dimensions

5.2 DATA OVERVIEW AND PRESENTATION

This Section presents primary data, which are the ethnographic observation of Urora community with regard to living habits, cultural and religious activities, and other events that influence the physical environment. The observations were based on attendance in religious, marriage, and burial ceremonies as well as collecting data on indiscriminate waste disposal practices, and determining the composition of waste at generation, and disposal points. Consistent with Sections 3.4.3 and 3.4.4, the data collected were from field observations, actual measurements and weight, then followed by analysis using thematic approach similar to the ones followed in Chapter 4 using the research sub-question as a guide, and the events as sub-themes (see Table 5.1).

These data are presented in form of Tables, Figures, verbal reports collected from focus group dialogues, heads of households and key informants. Furthermore, the study used map-based measures in conjunction with pictures/images to present a near accurate account of the happenings in the settlement. A key aspect of this Chapter is the use of Boxes by which to present the account/episodes of the lived experiences of interviewees.

In order to deal with solid waste composition appropriately, questionnaire forms (Appendices 7a, b & c) modelled after waste-aware indicator/benchmark and waste composition per capita (as developed by Wilson *et al.*, (2015)) were administered to five heads of households from the different ethno-religious and income groups with results shown in Table 5.2. This exercise involves the residents, their behaviour, and interaction with their physical as well as social environment. Table 5.2 shows that based on the six criteria, Urora can be ranked far below standard, as the settlement score less than 8% of the overall. This score in the last column represents waste collectors (health and safety of collection workers) as against no score for the environmental outlook of the settlement.

Table 5.1: Thematic Data analysis using themes and sub-themes of PEB

Theme/research sub-questions	Sub-themes	Origin of data	Form of data	Disciplinary location of analysis
1. Indiscriminate waste disposal practices	<ul style="list-style-type: none"> -Open-air burning -Compound waste dump -Shallow burial -public open spaces 	Interviews focus groups, books, natural occurring conversations, newspapers, books	Texts; recordings and transcriptions of talk	Phenomenology, Neurophenomenology, Neuroscience
2. Different composition of waste at generation and disposal	<p>Composition of waste at generation</p> <ul style="list-style-type: none"> -Biodegradable, putrescible, metal paper, plastic, glass, textile, others <p>Composition of waste at disposal</p> <ul style="list-style-type: none"> -includes the separation above 	-do-	-do-	-do-
3. Waste condition and public health	<ul style="list-style-type: none"> -availability of waste collection services -infrastructural facilities 	-do-	-do-	-do-

Table 5.2: Solid waste indicator/benchmark for Urora residents

Criterion	Description	Remark
Appearance of waste collection points	Presence of accumulated waste around collection points/container	Waste collection containers are conspicuously absent as most of the residents stack their refuse in plastic bags at a front corner of outside their buildings.
Effectiveness of street cleaning	Presence of litter and overflowing litter bins	Largely no street cleaning except the sweeping of frontages of individual homes or first prior to the coming of an important event like <i>Ikpoleki</i> festival.
Effectiveness of collection in study location	Presence of accumulated waste/illegal dumps /open burning	Illegal/unauthorised waste dumps and open burning are prevalent.
Efficiency and effectiveness of waste transport	Appropriate public health and environmental controls of waste transport	There exists inappropriate public health and poor environmental control in waste transportation.
Appropriateness of service planning and monitoring	Appropriate service implementation, management, and supervision in place	Supervision and service implementation is non-existent.
Health and safety of collection workers	Use of appropriate personal protection equipment and supporting procedures	Minimal materials for protection available like safety helmets and hand gloves.

Source: Adapted from Wilson, *et al.*, (2015). p.334

The five heads of households which were shadowed for five days each in the mornings and evenings on how they manage their solid waste were subsequently subjected to a phenomenologically-guided interview using the second-person method, on how comfortable they were about their immediate environment. The study analysed the

data obtained from the interviews in conjunction with data collected through focus group discussions, key informants' interviews, and personal observation for validation.

Furthermore, the NPC 2006 (a secondary data source), became handy as it reveals the extent of waste-disposal dysfunctionality at the state level. Table 5.3 shows the solid waste disposal methods on a housing unit basis, as only about 30 per cent (227 107 houses) of the 701 073 houses dispose of their refuse on unapproved dumpsites.

Compound burial or burial of any kind has a sizeable number of 179 040 households, far higher than those with collected waste (126 124 households). Given the dire disposal pattern experienced at the state level, Urora settlement seem to have followed the same trajectory. As at 2006 when the national housing and population census was carried out, the standard of living of an average resident was better compared to the present time, meaning that the quality of the environment has plummeted.

Table 5.3: Method of solid waste disposal in Edo state

Total	Collected	Buried by Household	Public approved dumpsite	Unapproved dumpsite	Burial by household	Other
701,073	126,124	69,000	87,309	227,107	179040	11,853

Source: National Population Commission (NPC) (2006)

5.3 INDISCRIMINATE WASTE DISPOSAL EVIDENT IN THE SETTLEMENT

Table 5.3 presents solid waste disposal at the state level, which is similar to Urora waste disposal pattern. The study obtained data through fieldnotes, observation, pictures/images, and secondary data form NPC (2006). The data parameters include the following:

- Open-air burning
- Compound waste dump
- Shallow burial
- Public open spaces

5.3.1 Open-air burning

From the study, open-air burning is a very common method of solid waste disposal in the settlement as combustible and non-combustible materials are collectively set ablaze with the intention of reducing the quantity of accumulated waste. It is a common sight to see residents indulge in this kind of practice with minimal regard to public health, and other environmental concerns (the practice contributes to the effects of greenhouse gas emissions, and global warming). The smoke emanating from the charred debris has been known to cause diseases of which the residents may not be aware/conscious, such as dizziness, headaches, and respiratory complications which could potentially induce asthmatic attacks, irritation of the eyes, nose and throat. Others sicknesses include pneumonia, leukaemia, and premature death, especially through particulate and gaseous toxins in the fumes emitted by the combusting waste.

Table 5.4 presents the interview data on waste practices evident in the settlement. Having spent four months in the settlement, direct observations that open-air burning appears to be the predominant form of waste disposal, and thus corroborates research data collected through other tools. Over the years, open-air burning has gained currency as one of the residents' methods to dispose of solid waste (see Figure 5.1a and b). However, when asked out of curiosity, they attribute diseases inherent from open burning impacts to other contributing factors, ranging from superstitious beliefs such as the victim's inability to take care of the late parents, among other sundry reasons such as the disliked neighbour's bewitching tendencies as reported by some residents (and documented in the researcher's field notes). It can be argued that the ancestors of the present inhabitants appear to have had more knowledge and concern about hygiene, and sanitation as they had initiated the compound waste dump, located about 6-10 metres away from the backyard building line.

Besides the health impact due to open burning, given the neuroscientific perspective, the olfactory processing monitors of the residents are continuously affected each time there are incidences of such an occurrence. Furthermore, from the perspective of

Table 5.4: Summary of interview analysis and data of waste disposal practices

PEB/Waste sub-questions	Ethnographic observation	Focus-Group/Workshop	Key informant/actor	Household interview
1. What are the indiscriminate waste disposal practices evident in the settlement?	<ul style="list-style-type: none"> -Shallow burial -Open burning -Indiscriminate dumping at junctions, uncompleted structures and vacant lands, schools, markets and moats 	<ul style="list-style-type: none"> -Shallow compound burial -Open burning -Launching in storm waters -Open dumping fill-up eroded surfaces -Open compound waste dump behind the house 	<ul style="list-style-type: none"> -Open burning and dumping in public open spaces 	<ul style="list-style-type: none"> -Push-cart scavenger -Personal take waste in my vehicle to deposit in isolated places.

social perception the smells emanating from the burnt debris is sufficient to make residents, and visitors alike 'run for safety'. Equally important is that the smoke makes residents exhibit gestures and facial expressions, which constitute visible signs that they are uncomfortable with the practice. More importantly, our experiences of somatosensory processes make us expect that the fumes, heat and blackish ashes from the burnt substances would negatively affect the skin of residents and visitors (Porro *et al.*, 2004).

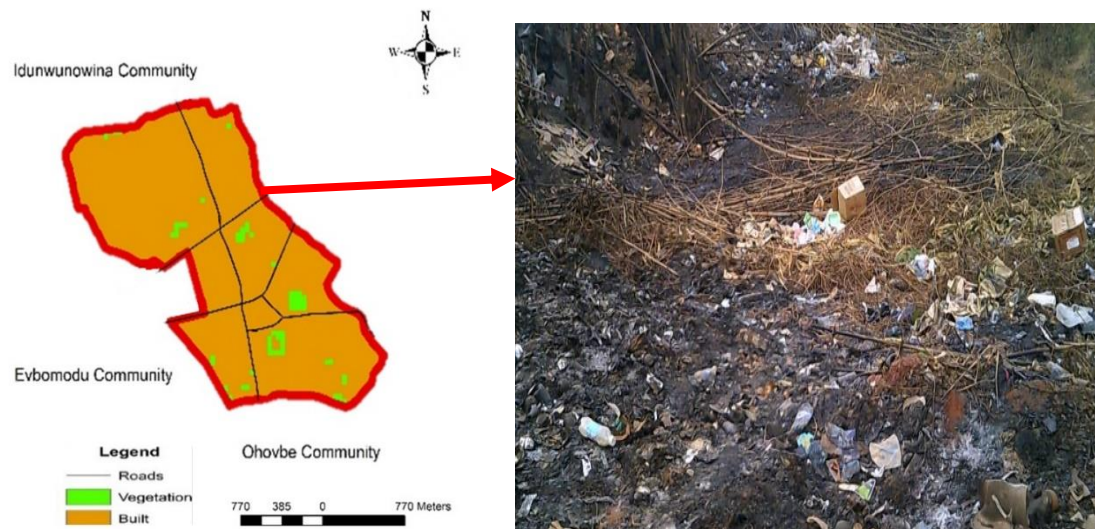


Figure 5.1a: Burnt remains of waste at the moat by *Ohihon Egobi* Street off Benin-Abuja express Road.

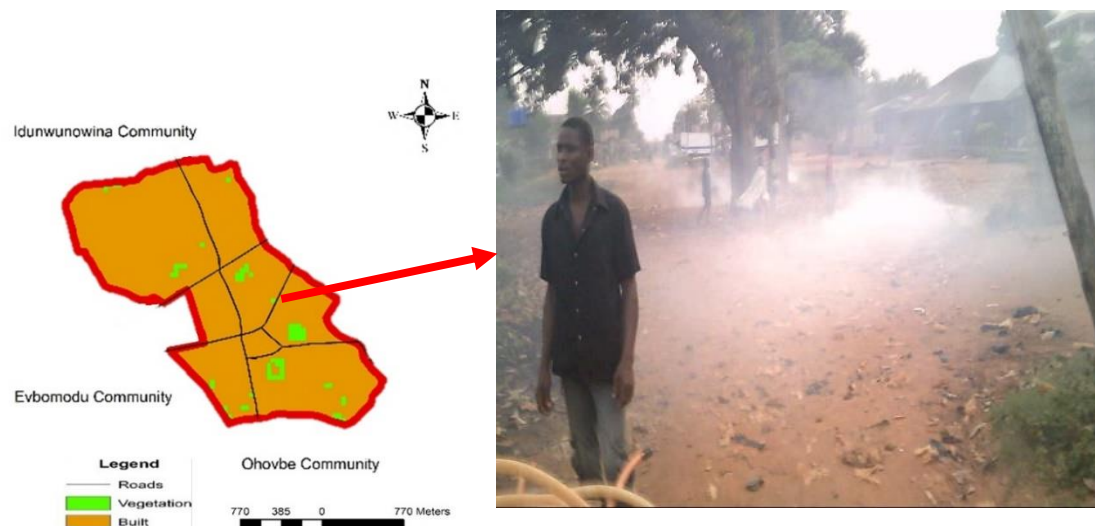


Figure 5.1b: Open-air burning of solid waste in progress along old Benin-Auchi Road.

As at the time of the fieldwork conscious efforts were not directed at documenting the dumpsites set ablaze on daily basis, but hardly any day passes without an incidence of open burning, either at the corner of a house or at unauthorised dumpsites. Given

the large volume of refuse at the unauthorised open public dumpsites, when set ablaze it could burn for several days, and possibly for a week or two.

5.3.2 Compound waste dump

Compound waste dump, (otherwise known in the local mother-tongue as *Otiku*), is sited behind most buildings; especially structures erected in the early part of the settlement. In the late 1970s and 1980s Urora was a dispersed settlement, which harboured few streets like old Benin-Auchi Road, Idunmwunowina, Enoruwa, and minor streets along which residents erected structures that house the *Otiku*. The dumps came about in the quest to fill the initially excavated portions of the yard/homestead for the earth used in the construction of individual houses or during construction, the sand-infill of the house during construction up to damp-proof course level (dpc). However, with the passage of time and related escalation in urbanisation, the population explosion, and the owners' quest for enhancing income from rental, especially through infill development, and especially through expansion of the older structure, had taken place thereby compromising on the building line setbacks.

In other cases, the compound waste dumps have metamorphosed into the back gardens which take advantage of the bio-degradable kitchen refuse. Crops like tomatoes, pepper, maize, yams, plantain, pumpkin, melon, cocoyams, bitter and water leaves, are common at these locations as the accumulation of decayed substances have provided fertile grounds owing to the depositing of ashes among other compost-enhancing waste. Interestingly, in some instances these crops have blossomed and been cared for, thus contributing in no small measure to the upkeep of the family through money realised from the sale of the harvest.

However, in some newer structures, the dumps are commonly located in front of buildings, and often are made up of fixed or movable structures. One common example is a raised concrete provision of not less than a meter high with a block work of not more than two courses of one by two meters in length, and in width. Owing to space constraints, other forms of waste storage include converted containers, which include disused/abandoned metal or plastic buckets as well as plastic bags of various sizes and colours. The contents of these receptacles emit a pungent odour as they

would have spent several days without attention (see example shown in Figure 5.2). Apart from the unsightly presence of these features, it has become breeding grounds for vectors like house-flies, rodents and cockroaches that taint/infect and contaminate food substances consumed by residents.

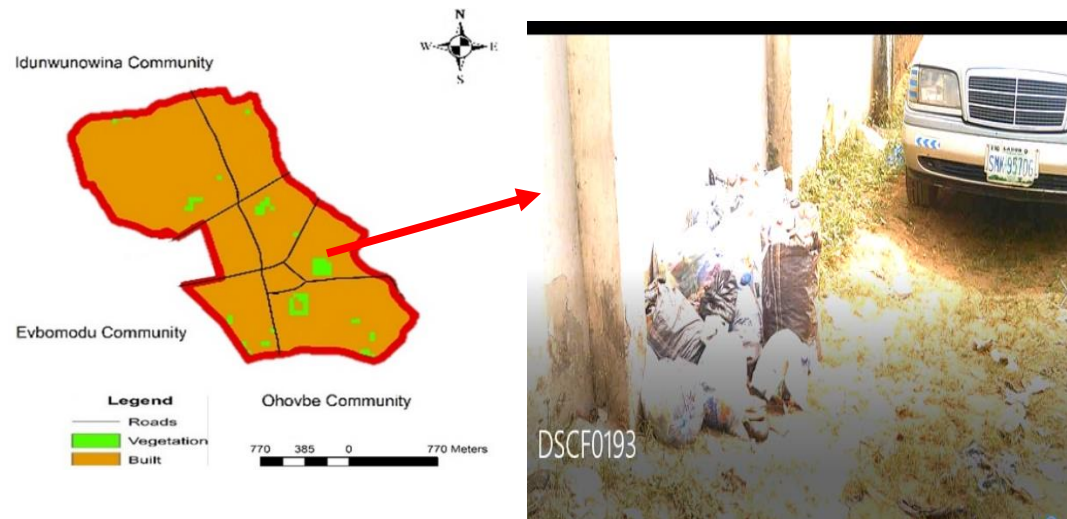


Figure 5.2: Outdoor open public waste dump along Ogiegor street.
Source, author.

The awareness of spreading disease and contagion trigger the age-long responses of cleaning and washing, which are still taught at the various homes as well as at elementary school. At homes, there are teachings/clichés which says “*Wa ghe gbi iku ye’vba, iku sie emiavwen*”, which means: do not throw refuse here as it is the primary cause of diseases. Maybe as an additional attempt to avoid this odour caused to accumulated uncollected/unattended refuse, some residents have resorted to burying their waste.

5.3.3 Shallow burial

In the course of the field-work, I observed that residents especially those whose compounds are bare, have adopted the habit of shallow burial. As alluded to by one of the focus group discussants, this practice is counter-productive as on the one hand most of these waste substances hardly decompose, and the land available for use is limited, while on the other hand the land also becomes polluted and dangerous/unsafe as a venue for children’s play.

..., like my house, there is not like children buying biscuits, pure water and other things, that after eating they drop it anyhow. However, the dirt that is much I gather them and put fire, I cannot be digging ground regularly to bury them. Maybe 2-3 years you will come back to where have buried before if you burn them, it will lessen the amount of rubbish. In most cases, I burn my own.

-Contributions of a focus group discussant February 22 2017

Besides, further development on the sites with shallow burial requires an additional cost for improvement without which subsidence shall occur that may lead to unintended consequences. Such consequences could in addition pave the way for erosion, and degenerate from sheet to rills which if not attended to could affect the foundations of the adjoining buildings.

Through visual perception, the colour, and form of places with shallow burial becomes repulsive and unattractive as the object-selective regions of the human visual cortex of the brain have warned the individual of impending danger. Besides, the burial sites emit odours from the decomposing substances, which are unpleasant for the occupants of such structures. This was revealed by their facial expressions in a manner similar to observations Zihl (2014) and Bar and Bubic (2014).

5.3.4 Public open spaces

In addition to open-air burning, compound waste dumps, and shallow burial, public open places like moats, school compounds, markets, uncompleted structures, streets, and road junctions all have become alternative places for the residents to dump their waste (see example in Figure 5.3). Added to this fact, whenever it rains, the roads which serve the dual purposes of access and flood-water storm drainage have become a dumping ground for some residents who fling their refuse into the stormwater, expecting the waste to be transported to less fortunate areas by gravity, and the velocity of the flow. As one would expect, the roads are seasonally fraught with all manner of non-degradable refuse, from cigarette butts to plastic bags/substances of various shapes, colours and sizes (see Figure 5.4, Tables 5.5a and b summary of disposal activities and composition of solid waste with interpretative perspectives).

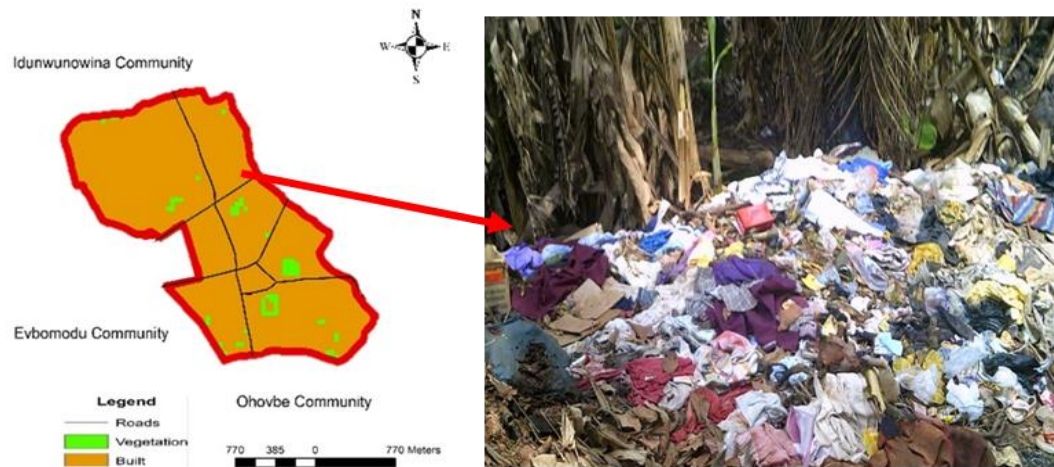


Figure 5.3. Public open space, the foreground of a moat/burrow pit

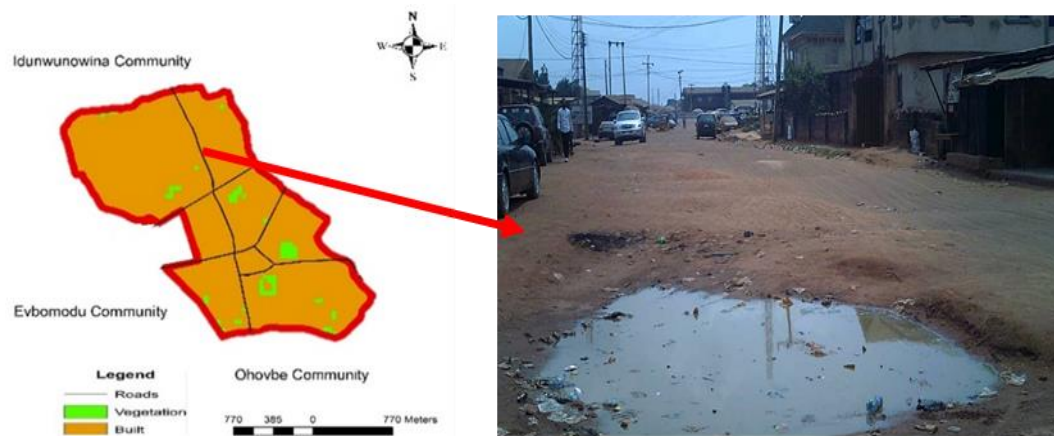


Figure 5.4. Idunmwunowina Road, off the Benin-Abuja Expressway, a major access road towards the second half of the community.

An unabridged version of one of the field-notes complements the emerging deterioration of the unsightly environment.

Driving along the Benin-Okene-Abuja highway (as the highway almost separates the community into two halves), and on entering the community from Enoruwa Street, a prominent feature is the filthy nature of the environment. The presence of kiosks and temporary structures erected by traders on both sides of the road to sell their goods/wares, causes filth. The

Table 5.5a: Summary of indiscriminate waste disposal activities with theoretical/interpretative perspectives

Research sub-question	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from neuroscience/region of central nervous system
What are the indiscriminate waste disposal practices evident in the settlement?	<ul style="list-style-type: none"> Preliminary data on participants on disposal practices Open burning on the street and uncompleted structures 	<p>Life-world, inter-subjectivity</p> <p>being-for-itself, but a being-for-the-other</p>	Relationship between cognition, experience, consciousness, embodiment and culture	Mirror neurons, object-directed actions, action perception at the Broca cavity of the brain olfactory monitors neuron of the nose affected from the generation of smoke and registers at the olfactory bulb. Somatosensory as the skin is affected by heat, fumes and ashes
	<ul style="list-style-type: none"> Compound waste dump 	-do-	-do-	Visual perception, olfactory monitors affected because of stench. Somatosensory top-down modulation, orbito-frontal cortex along with other cortices are affected
	<ul style="list-style-type: none"> Shallow burial 	being-for-itself, but a being-for-the-other	-do-	object-directed behaviour
	<ul style="list-style-type: none"> Public open spaces moat, school compound 	Somatic modes of attention.		Object-directed, mirror neurons

Table 5.5b: Summary of waste composition with theoretical and interpretative perspectives

Research question	sub-	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from neuroscience/region of central nervous system
What are the different compositions of waste at generation and different disposal points by households/families?		Composition through waste separation at generation resulted in the following <ul style="list-style-type: none"> • Bio-degradable • Putrescible • Metals • Glass • Paper • Textiles • Plastics • and others 	Noetically the ways they experience the stench from waste especially putrescible. Noematically neural correlates affected by decomposition	Relationship between cognition, experience, consciousness, embodiment	Arousal neural activity in the left amygdala, happiness evoked in media OFC
		Composition at disposal <ul style="list-style-type: none"> • Include all of the above and • market refuse, • e-waste 	-do-	-do-	-do-

presence of shoppers/passersby to purchase these items generates refuse ranging from empty plastic water sachets to orange and cherry peels/skins, seeds and cobs of various sizes, colour and age. The immediate effect of the activities by the traders is the taking over by them of the legal setbacks through infill developments that resulted in little or no space for refuse bins, whenever they are available. The intensity of the trading activities over time, coupled with uncollected refuse is made worse whenever it rains as stormwater transports the accumulated dirt to the low-lying parts of the roads and other areas susceptible to erosion.

The absence of designated refuse containers occasioned the use of empty paint plastic containers, empty cement bags, empty cartons, and in some cases the gathering of refuse in the frontages of homes or backyards, and later setting them on fire seems to be the predominant disposal pattern. It appears that source separation before applying other waste management tools such as reduce, re-use, recycling, and composting seems rare, rudimentary, or non-existent as there exists a mixed bag of odd items.

The same scenario repeats itself in different parts of Benin City; given the impression that this ugly episode is not peculiar to the study location, it is a state-wide affair.

Researcher's Field note February 2017

From the perspectives of Larson *et al.*, (2015) and Steg and Vleg (2009), our study revealed a dis-connect between human-environment interactions as the settlement is yet to demonstrate awareness of factors that influence ecological harm or even the willingness to support the exploration of natural resource conservation measures, associated with waste management practices. The predominant waste disposal types of open-air burning, compound waste disposal, shallow burial, and public open spaces attest to this position. Phenomenologically, it strongly hinges on the question of being-in-for-itself, and not-a-being-for-the-other as no consideration is made for the relationship, and interaction with one's surroundings.

5.4 COMPOSITION OF WASTE AT GENERATION AND DISPOSAL POINTS

An exciting aspect of the study was the exploration of the composition of waste both at generation and disposal points as presented on Table 5.6, which combines data from field-notes, and the survey. The combined data reveal a rich composition of waste as analysed, which is taken up under the following headings:

- Composition of wastes at generation
- Composition of wastes at disposal

Table 5.6: Summary of interview analysis and research data of waste composition

PEB/Waste sub-questions	Ethnographic observation	Focus-Group/Work shop	Key informant /actor	Household interview
2. What are the varying compositions of waste at generation and different disposal points by households/families ?	<p>Generation</p> <p>-Bio-degradable (putrescible)</p> <p>-Plastics, Paper, Textiles, Glass, Metals, Aluminium</p> <p>Disposal</p> <p>Non degradable, Plastics, Textiles, E-waste, Metals, Aluminium,</p>	<p>-do-</p> <p>-do-</p>	<p>-do-</p> <p>-do-</p>	<p>Generation</p> <p>-Bio-degradable (food substances) garden debris</p> <p>-Plastics, ashes</p> <p>Disposal</p> <p>-Behind the house accumulated overtime and favoured the propagation vegetables</p>

5.4.1. Composition of waste at generation

A chart which included the various categories of solid waste was designed to guide data collection on the constituents/composition of generated waste at the various homes of the different income and ethno-religious groups of the households. The chart was based on Larson *et al.*, (2015), who notes that family size, education level, and monthly income are the key factors which influence waste generation. Each householder was given some plastic bags to accommodate the separated waste as per the categories applied in Table 5.7, which are bio- degradable (bio-waste), plastics, putrescible, paper, glass, metals, textiles, and others. Table 5.5b presents the effects of waste composition with theoretical, and interpretative perspectives.

The categories are then applied in the analyses, as presented in the subsequent sub-sections.

Bio-degradable (otherwise known as bio-waste) is made up of organic matter which can be broken down by micro-organisms such as soil bacteria, fungi, actinomycetes, and protozoa. In line with Larson (2015), income levels seemed to influence Urora residents'-consumption pattern, their likes and dislikes, and the meaning they ascribed to the waste.

The waste from the homes of the interviewees, were peels/barks of yam, plantain, cocoyam and cassava, skins of cherry, watermelon, orange, pineapple and bananas. Others are the remains of rice, *eba*, cabbage, cucumber, orange, pawpaw skins and seeds, and maize leaves and cob. An interesting aspect is that the remains of the bio-degradable substances (mostly the remains of the staple food in the locality) are more when compared to other forms of waste. For example, in Table 5.7, a Christian family of three generated 1.7kg of the remains of *eba*, rice and yams in a particular day; however, this is nothing compared to a Muslim family of eight as displayed in Table 5.8, who generated bio-degradable waste of 3.5kg within the same period in a single day.

Plastic is a standard waste-material in the study location in Benin City, and most Nigerian urban centres. The main driver of this prevalence is the ubiquitous use of plastic bags of various quality and textures for shopping, without paying a specific fee/cost. Plastic types mostly used for most purposes are the polyethylene terephthalate (PETE) high-density polyethylene (HDPE), polypropylene (PP), polystyrene (PS), among others. Soft drinks, water, mineral water, shampoo and mouthwash mainly use PETE bottles. Packaging of detergents, bleach, fabric conditioners is based on HDPE bottles as the main material. Heavy duty bags, carpet fibres, drinking straws, and biscuit wrappers are commonly made of PP. The packaging of yoghurt, eggs, video cases, and coat hangers are from PS materials.

Table 5.7. Waste composition per capita and in percentage of a Christian family, medium income of population of 3 persons off Idunmwunowina Street

Days of the week	Bio-degradable	Plastics	Putrescible	Paper	Glass	Metals	Textiles	Others	Total
	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap
Monday	1.5	0.1	--	--	--	--	--	--	1.60
Tuesday	1.4	0.1		--	--	--	--	--	1.50
Wednesday	1.6	0.4	0.25	--	--	0.1	--	--	2.35
Thursday	1.7	0.1		0.1	--	--	--	--	1.90
Friday	1.2	0.1		0.2	--	0.1	--	--	1.60
Total	7.4	0.8	0.25	0.3		0.2			8.95

Unrecycled plastics are the most common form of waste in the study area as they are used to enclose or carry anything that is purchased across the counter. Because of its versatility in use, and its low cost of production (hence its negligible cost/price), it is used extravagantly at every point, to the extent it has become ubiquitous to the point of constituting a threat, and nuisance to the environment. Urora settlement thus appears to be awash with all manner of the plastic-waste being generated on a daily basis. While its weight is negligible, weighing from 0.1 to 2.0kg in Table 5.7, it is quite large by volume, and the space occupied.

Putrescible waste

Putrescible waste is solid waste that contains organic substances, which decomposes quickly through the action of micro-organisms, and causes pungent odours within hours of exposure. In Urora settlement, some of these substances are tomatoes, kitchen soup, eggs, meat, and fish among others. It constitutes much of the waste that emit foul and offensive odours, with its weight ranging between 0.25kg in a medium-income Christian family of three to 2.3kg (see Table 5.7) in another medium-income Christian family of five. In addition to the offensive odours that impact on the olfactory processing monitors of the central nervous system, it affects the gustatory processing monitors as the pungent smell tend to stimulate disgust, which can even lead to nausea and vomiting.

Paper

A primary source of solid waste is paper that comes in the form of hard and soft textures. The hard types consist of cartons for the packaging of household items, and ranges from utensils from detergent/soap to pots, and beverages. The soft paper is mostly in the form of old daily/weekly newspapers, magazines, posters, and pamphlets of immediate past church, burial, and political programmes. Going by the heads of households who were shadowed, these items were less in quantity at the time of the survey, as it was at the beginning of the year where people may have spent all they had during the festive season, and by now were left with little or no money to spend.

Glass

Glassware consists of drinking vessels, and tableware. Drinkware consists of coffee cups, mugs, and jars among others. However, from our sample survey/fieldwork, drinkware is quite a luxury as most residents regularly use plastic cups. Of the five families shadowed over five days, one household, a low-income group earner, for a particular day recorded 1.5kg of glass items, and the weight, and related percentage is entirely negligible (see Table 5.8) when compared to the more significant case of a medium-income family as presented in Table 5.7.

Table 5.11 presents a significant waste type considered in the category others, as this household that has little to spare other than ashes.

Metals

Metals consist of aluminium, brass, copper, stainless steel and wrought iron. Empty tins from the kitchen/dining comprising of tomato puree, and milk were quite visible as presented in Tables 5.7-5.9. In contrast to the reported factors responsible for waste generation in Larson *et al.*, (2015), Table 5.9 reveals a situation where low-income household generated more solid waste than a middle-income one (compare Tables 5.9 with 5.10).

Textiles

Textiles are normally manufactured with materials from four main sources, which are plants (cotton, flax and jute), synthetic materials (nylon, polyester, acrylic) animal products (silk, wool, hide), and minerals (asbestos, glass fibre). Of these source materials, plants and synthetic materials appear to be most commonly used in Urora. This is possibly influenced by the purchasing power (which mainly depends on income), and the prevalence of hot and humid weather/climatic conditions that favour light clothes. Of the five households shadowed for the field work, only one had textiles as waste for a particular day, as recorded in Table 5.10

Table 5.8: Waste composition per capita and in percentage of a Christian family, medium income, a population of 5 along Ogiegor Street

Days of the week	Bio-degradable	Plastics	Putrescible	Paper	Glass	Metals	Textiles	Others	Total
	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap
Monday	- -	--	3.0	--	--	--	--	--	3.0
Tuesday	1.0	2.0	0.3	0.2	1.5	--	--	--	5.0
Wednesday	1.3	0.1	--	0.1	--	--	--	--	1.5
Thursday	0.7	1.2	2.3	--	--	0.8	--	--	5.0
Friday	1.0	0.25	0.55				--	--	1.80
Total	4.00	3.55	6.15	0.3	1.5	0.8			16.30

Table 5.9: Waste composition per capita, and in percentage, Muslim family, low- income, a population of eight, at Aideyanba Quarters

Days of the week	Bio-degradable	Plastics	Putrescible	Paper	Glass	Metals	Textiles	Others	Total
	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap
Monday	3.5	0.5		0.25	--	0.5	--	--	4.75
Tuesday	1.0	0.5	0.75	0.1	--	0.1	--	--	2.27
Wednesday	2.0	0.35	--	--	--	--	--	--	2.35
Thursday	--	0.3	1.1	--	--	--	--	--	1.40
Friday	--	0.1	--	0.15	0.1	--	--	--	0.35
Total	6.5	1.75	1.85	0.5		0.6			11.3

Table 5.10. Waste composition per capita and in percentage, Christian family, medium-income, a population of 7, off Idunmwunowina Street

Days of the week	Bio-degradable	Plastics	Putrescible	Paper	Glass	Metals	Textiles	Others	Total
	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap
Monday	0.4	0.3	--	0.1	--	0.01	0.3	--	1.11
Tuesday	--	0.3	0.4	--	--	--	--	--	0.7
Wednesday	--	--	0.6	0.3	--	--	--	--	0.9
Thursday	0.5	0.1	0.2	--	--	--	--	--	0.8
Friday		0.01			--			--	0.01
Total	0.9	0.71	1.20	0.4		0.01	0.3		3.52

Table 5.11: Waste composition per capita and in percentage, Christian family, low-income, a population of 7, at Aideyanba

Days of the week	Bio-degradable	Plastics	Putrescible	Paper	Glass	Metals	Textiles	Others	Total
	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap	Kg/cap
Monday	1.0	--	0.1	--	--	--	--	--	1.1
Tuesday	1.0	--	0.1	--	--	--	--	--	1.1
Wednesday	- -	- -	--	--	--	--	--	1.0 (Ashes)	1.0
Thursday	- -	--	0.15	--	--	--	--	--	0.15
Friday		--		--	--	--	--		3.35
Total	2.0		0.35					1.0	

5.4.2. Composition of waste at disposal points

Extensive fieldwork on waste at the point of disposal was carried out, and the composition was systematically documented. However, the data show that waste types at disposal points were not very different from those at generation points within households even though the volume/quantity was quite large. A significant reason for this development was the study focus on household solid waste, which emanated from domestic activities, and the study area is primarily residential with informal trading as the main economic activities. However, the disposal points also receive waste from educational, commercial, and small-scale industries within the community. The disposal points visited for the study were located in two unauthorised dumpsites where one was along the road, and the other was in a secluded area.

The roads

As pointed out earlier, a standard feature on the roads is the numerous waste items on them, which may not have been deliberate, but due to the seasonal nature of the roads. Most often during the wet season the roads serve the dual purpose of pathways for people, vehicles and animals, and also to convey stormwater emanating from the various houses, and surface runoff from the expressway, and roads in the community as there are no dedicated roadside drains for this purpose. It is during the wet season, (when a substantial portion of the area is submerged) that several residents take advantage of the prevailing circumstance to throw their waste into the stormwater to be washed away to low lying areas.

In addition, within the wet season, there is a delay in formal waste disposal, which then means that the stormwater equally transports the light-weight waste like plastics which have been dispersed by wind, birds and animals. The accumulation of these waste types brought along mainly by stormwater results in the roads becoming littered with layers of refuse mixed with dunes of sand, and impervious clayey soil. Typical examples of locations with such waste accumulations are the old Benin – Auchi road, Enoruwa, Idunmwunowina, Osagiede-Agho-Ighekpe, Omorodion Streets, as well as other adjoining streets (see Figure 5.5a and b).

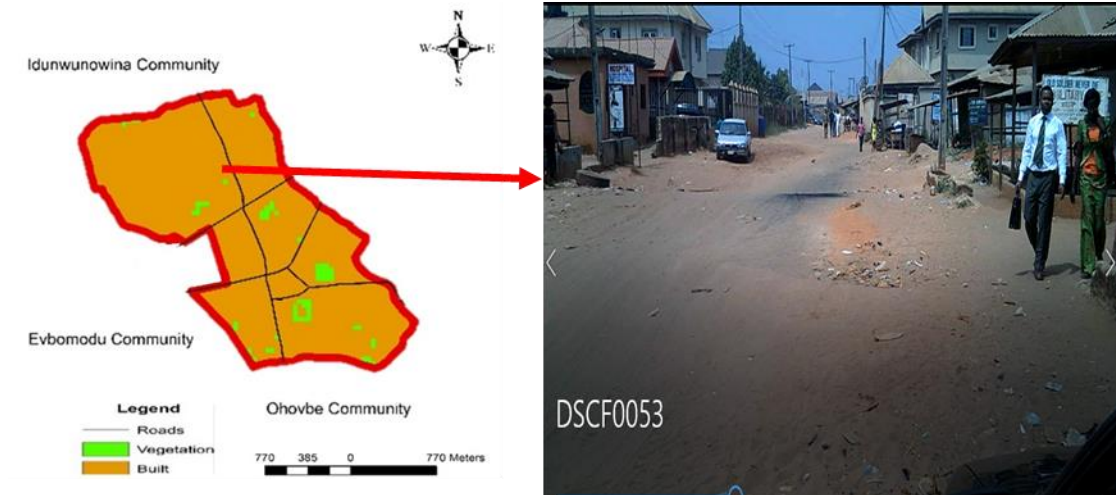


Figure 5.5a: A closer view of Idunmwunowina road note the filthy or dusty nature

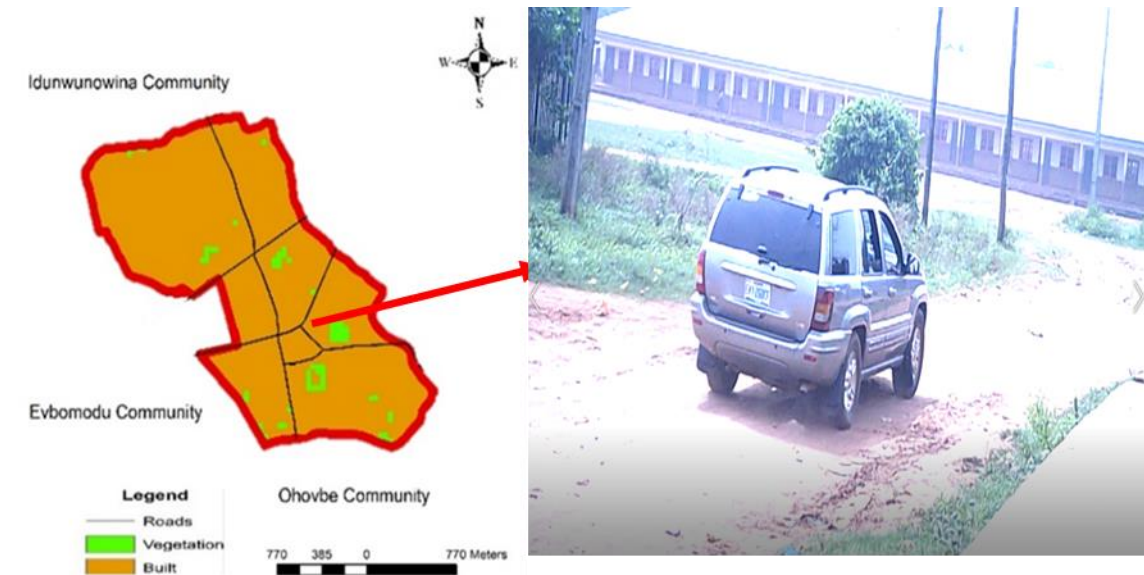


Figure 5.5b: Old Benin-Auchi road, area mostly submerged during the wet season

The following waste items with varying degrees of concentration fill the roads, along with other illegal dumpsites within the community. Items like empty plastic water sachets, empty plastic table water containers, plastic bags of various colours, sizes and age, orange peels, curb and seeds, cherry peels, and seeds, airtime packages, plantain peels, empty wraps of biscuits, sweets, cheese balls, and chewing gum are

ever present. Others include wrappings of shaving sticks, soft drink paper pack/plastic, empty liquor plastic pack, disused carton packages of various products, and the burnt/charred remains of the items listed above (see Figures 5.5a, 5.6a-5.6d). These non-degradable items far outweigh the bio-degradable/organic waste across the numerous sites within the study location.

While the above disposal processes/sites are spontaneously established, there are other occasions where disposal actions are deliberate. Examples of such instances include the access roads, roads abutting shops, and other commercial ventures whose owners are in the habit of disposing their unwanted substances on the roads. Wastewater from kitchen/restaurants, plastics from *akara*, *agbo*, *moimoi*, vegetables, and confectionery-wrappers are some of the waste purposely dumped on the roads. Some of the effects of these practices are the acrid odour, and smells associated with such areas as visitors, and residents alike are regularly confronted with extreme discomfort. In addition, residents experience yet further discomfort from dumpsites in secluded locations which have become attractive to most residents as places to dump their waste almost anonymously.

Secluded areas

Secluded areas include the moats, burrow pits, uncompleted/uninhabited structures, and recess areas of schools, markets, churches, and undeveloped sites/plots. These now seem to be attractive areas for the residents to dump their waste from homes, commercial, educational, and religious establishments. Figure 5.3 shows waste items mainly from the primary and secondary school close-by. The waste is made up of bio-degradable and non-degradable types as earlier defined. However, Figures 5.6c and 5.6e present more of a mixed-bag of charred remains of both degradable and non-degradable waste. A standard feature in the pictures is the fact that it is located within isolated areas; and that it also emits a foul stench that rises up from the open-air decomposition process.

While much of the commercial and some household waste seemed to have littered the busy roads, the moat, which initially served the dual purposes of defence, and being a boundary between one community and another, has become a favourite location for dumpsites at various points. Considering the growing volume of waste

generated, and eventually dumped at these points, they are becoming more frequently and intensely used, as seen in Figures 5.6a-f, which reflect the following:

- Moat by Ohihon Egobi Street by the highway (Figure 5.1b); moat/borrow pit at Akhigbe off Idunmwunowina Road (see Figure 5.3)
- Moat boundary with Idunmwunowina community by Wealthbug hotel
- Boundary with Evbomodu community off Idehen Street
- Boundary/Edebiri Street before old Auchi Road (see Figure 1.2)
- Agbabimomo Osayande Street on the moat overlooking Aduwawa community
- Otamere Street at tangent with the Moat (Figure 5.6c)
- Moat/boundary with Aduwawa/Idunmwunowina communities behind Dr. Aba One Street
- By and large, these moat sites (which are unauthorised) have become convenient dumpsites for the residents living in proximity to the moat

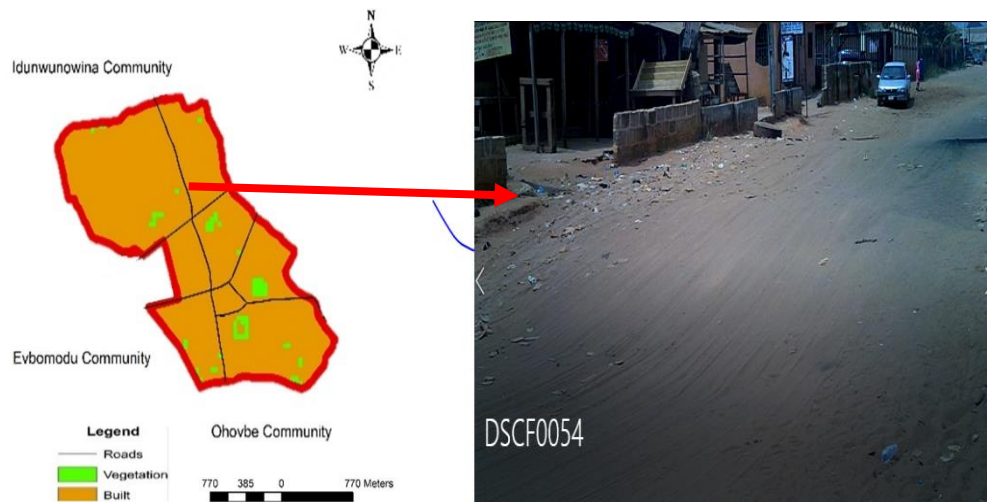


Figure 5.6a: Idunmwunowina, a major Street.

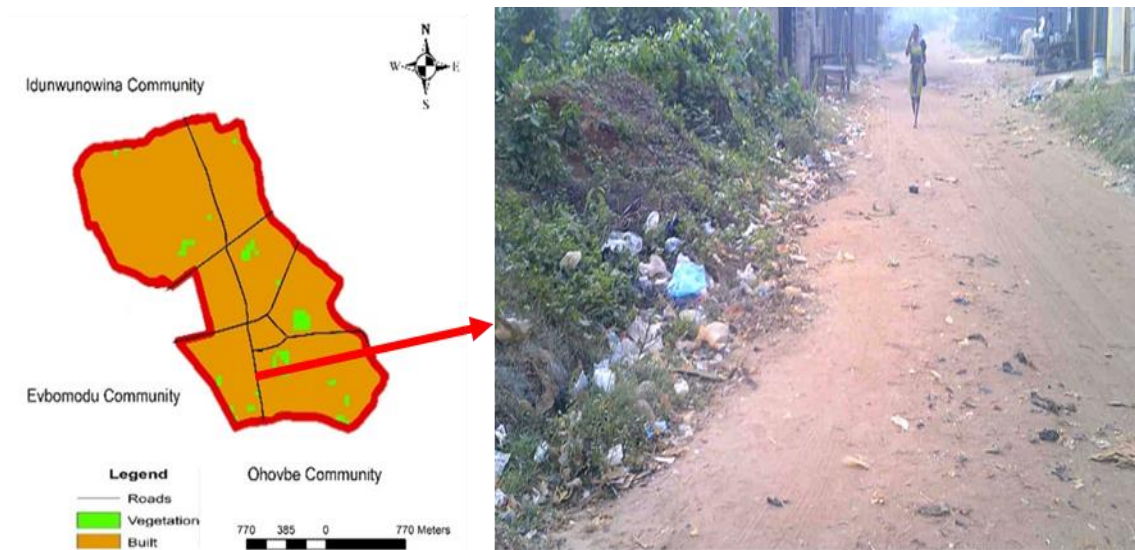


Figure 5.6b: Omorodion/Chairman street, note the layers of loose soil mixed with plastic

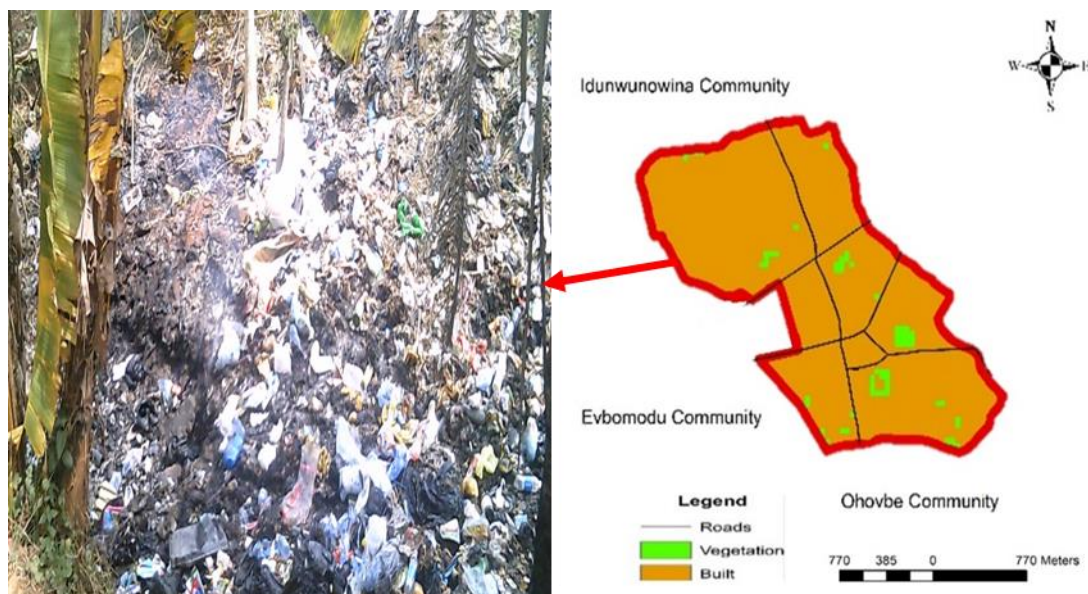


Figure 5.6c: Burning waste on the moat of Agbabiomo/Osayande Streets

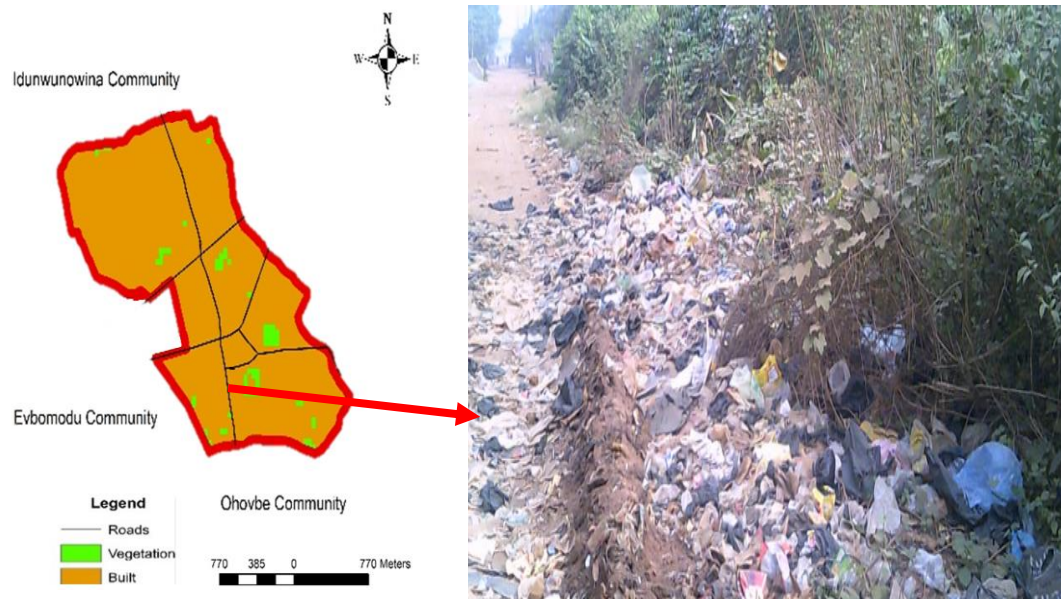


Figure 5.6d: Street dumping of refuse along Omorodion/Chairman Street

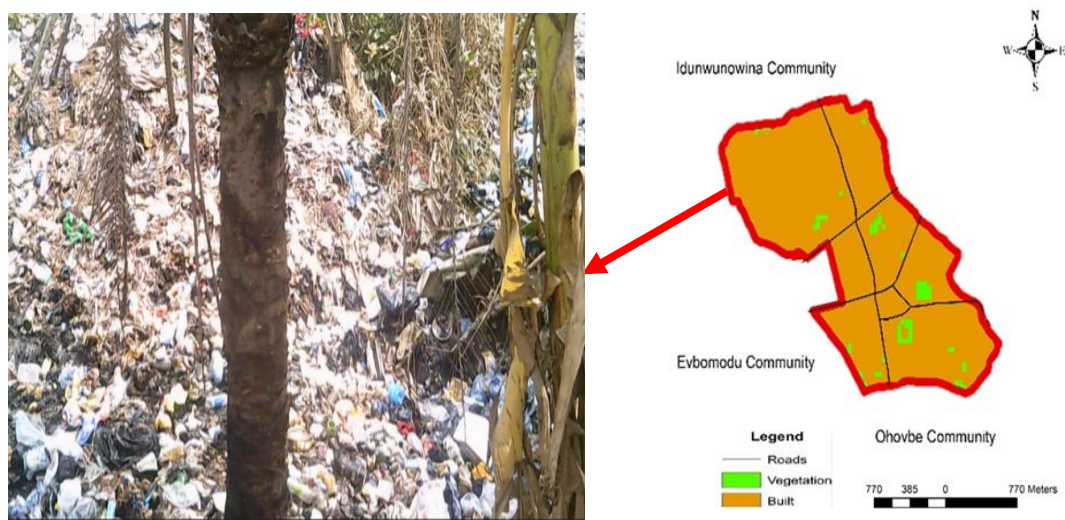


Figure 5.6e: Dumping and burning of waste on the moat overlooking Aduwawa and Idunmwunowina communities

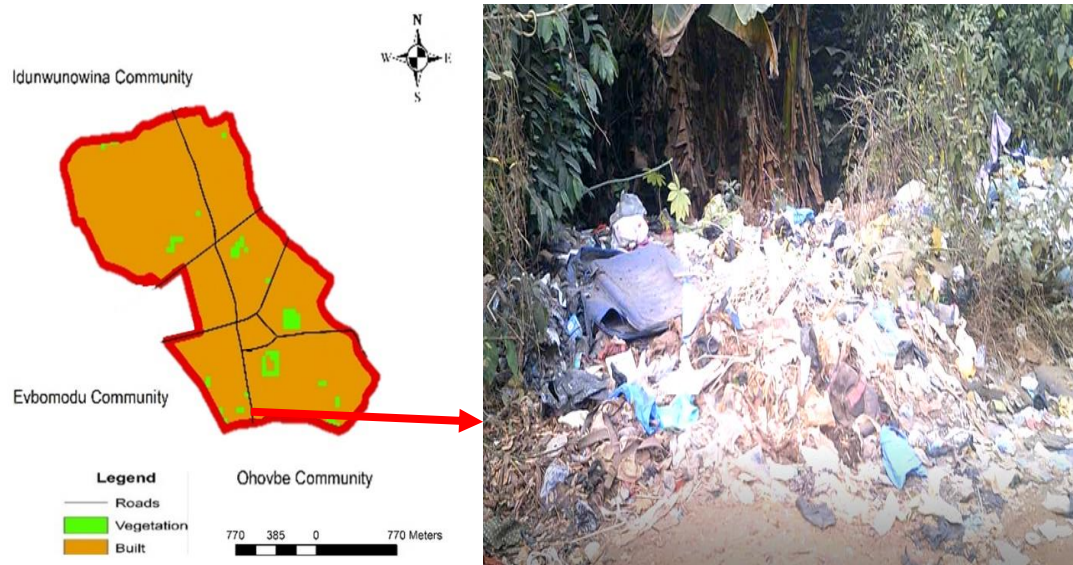


Figure 5.6f: On-street dumping of waste on the road linking Urora with Ohovbe community

5.5. EFFECT OF ‘WASTE CONDITION’ ON PUBLIC HEALTH AND INFRASTRUCTURE

This section presents data and analysis on the effects of waste conditions on public health, and infrastructural facilities. Table 5.12a presents the interview data, and analysis of the waste condition of the settlement, while Table 5.12b presents a summary of the waste condition with theoretical and interpretative perspectives considered under the following headings:

- Near unavailability of waste management service
- Public health
- Infrastructural facilities

Table 5.12a: Summary of interview analysis and data on waste condition

PEB/Waste sub-questions	Ethnographic observation	Focus-Group/Workshop	Key informant/actor	Household interview
3. How does the “waste condition” affect the quality of public health and infrastructure and facilities in the settlement?	<ul style="list-style-type: none"> -Stinking environment -Prevalence of vectors from housefly to mouse/rodent that contaminate food substances -Wooden energy pole eaten up by termites whose production is facilitated by indiscriminate waste disposal and loose soil compaction 	<ul style="list-style-type: none"> -Offensive odour -Unattractive environment -Diarrhoea -Flooding as result of blocked stormwater channels (moat) by waste 	<ul style="list-style-type: none"> -Squalor, typhoid fever and gastroenteritis 	<ul style="list-style-type: none"> -do-

5.5.1. Near unavailability of waste management service

As stated in Chapter 3, formal waste collection service in the settlement covers about 25% of the area, and the remaining 75% have to cope with alternative means of waste collection, and disposal. The inability of the municipality to manage the waste within the 3Rs framework or even at the level of disposal has created severe hardships for the residents, as accumulated waste create favourable conditions for bacteria and diseases to thrive, which affects both humans and the natural habitat within the settlement. While conducting the heads-of-households interviews, one of the

Table 5.12b: Summary of waste condition with theoretical and interpretative perspectives

Research sub-question	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from neuroscience/region of central nervous system
How does the “waste condition” affect public health and infrastructural facilities in the settlement?	<ul style="list-style-type: none"> • How many HH have access to reliable waste collection service? • Presence of accumulated uncollected waste. • Open burning • Open waste dumps behind the house. • Shallow burial of solid waste. • Reported cases of malaria, typhoid, cholera, diarrhoea, • Flooding as result of blocked channels by waste 	Analytical categories such as perception and sensation to interpret embodied experiences is imprecise	<p>-somatic modes of attention.</p> <p>Inter-bodily resonance</p> <p>Mirror neurons</p>	<p>Visual perception, shape, colour</p> <p>Occipitoparietal “where” pathway contains shape information and the Occipitotemporal</p> <p>“what” pathway contains location information.</p>

participants living close to an undeveloped plot, whose house has been adversely affected by uncontrolled/indiscriminate waste disposal, had this to say

I am not really comfortable being that you are not the only one badly affected, what do you If others can cope apart from the light (electricity) thing, the road thing, the waste disposal too apart from the area you are looking at we do not have a waste manager covering this area. So we know how to dispose of our waste, and at times you wake up in the morning, for instance, this next compound close to me I normally clear the sides because of rodents and reptiles. I woke up one morning, to meet that somebody you know has thrown whatever there, of course, it is somebody in this area. It is because he or she did not know where to put his refuse, he decided to put it here. Until I have to clear it extensively so that if you are going to that, it would not be too close to my own house. What I used to do was a kind of path, but now I have to make it more extensive and wider so that if the person refuses to stop it would not be so close because of the smell and the nuisance ...

Interview with head of household February, 25 2017

The approved private waste-collector/manager covering part of the study area uses inadequate means to collect and transfer waste from the frontage of buildings to the disposal site at *Ikhueniro* some eight kilometres away. During the collection of waste, workers are in their habit of boots, gloves, nose protectors, head-gear and shovels. However, the vehicle is a 10-ton tipper lorry with a very high bucket, entirely unsuitable for this purpose. The height is therefore a constraint, because when loading it becomes difficult to conveniently transfer the waste to it, and in the process some of the waste contents falls to the ground, thus contributing further to littering.

5.5.2 Public health

This study makes reference to public health in Section 5.2.1. However, the emphasis here is to say that waste disposal, and pollution are inextricably linked. For example, the open-air burning of solid waste either by the roadside (see Figures 5.7 and 5.8), within the homestead, in open or public spaces emit substances that could be carcinogenic, and toxic compounds, which are hazardous to human health. In the course of the focus-group discussions below are some related sample excerpts from two discussants:

C1.5 We normally experience fever, malaria, that of diarrhoea this what I do not think of. In most cases people normally go for treatment is fever, that high fever or typhoid fever. We have not had cases of cholera or others. What we normally experience is fever malaria, all these body pains these are fever causes.

C1.3. To support my brother, C1.5. That is apart from those malaria and typhoid, the rest ones really we have not experience them. The cause of the malaria is not dirt alone the flood mostly, we do not experience malaria during dry season but during rainy season because of flood. This time of dry season we always sleep outside we do not even care but during rainy season, it always difficult to step out of your room nor sleep without the mosquito net. That is when we even experience fever and typhoid. However, the rest we never experience it.

- Excerpts of focus group discussion February 22, 2017

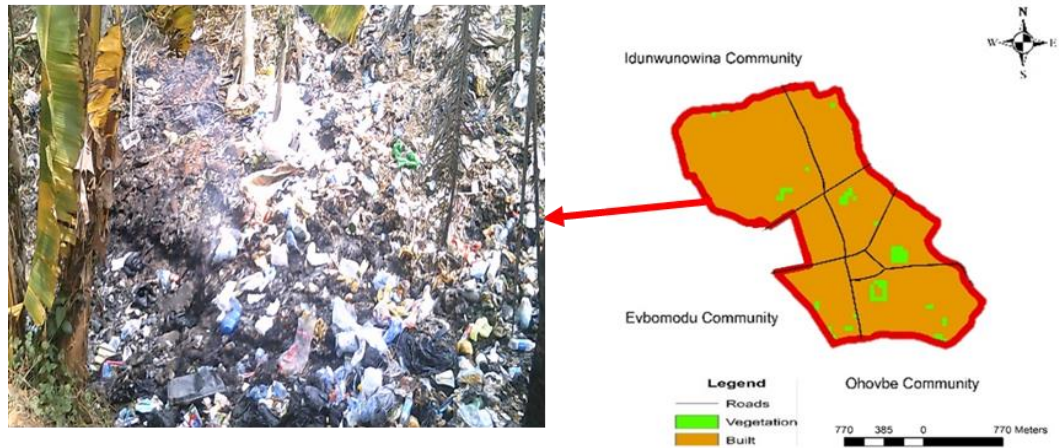


Figure 5.7: Accumulation of waste types at the Moat at Agbabiomo/Osayande road disposal site

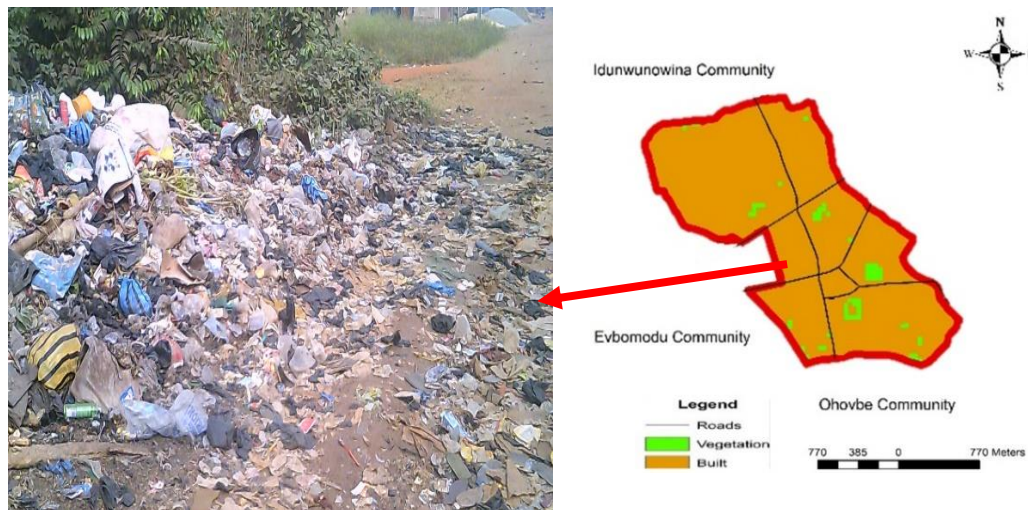


Figure 5.8: Waste types and accumulation at Edebiri/Boundary Road site

It appears the knowledge of the residents about the dangers indiscriminate solid waste disposal poses to health is limited to malaria/typhoid fever, as learnt from the excerpts of focus group discussion. However, as much as the composition of waste is varied, there exists a mixed variety, and composition of micro-organisms which are responsible for diseases and sicknesses that afflict human, and other living organisms. That diseases that can be developed/spread through contact with the substances such as the waste in the community, is corroborated by Lenkiewicz and Webster (2017) in recent study where they revealed that Methane gas is released to the atmosphere when waste is left for the elements to deal with. For this reason, a foul smell has become a permanent feature of the settlement. This very stench implicates the olfactory bulb of the nose that connects to the brain, as the neurons are designated for the purpose of discerning airborne agents that enter the human respiratory system, as it warns the individual of polluted air. Also implicated are the pre-frontal and posterior visual cortex, which warns the subject of the foreign substance that is about to be experienced (see Appendix 9). If repeated over time, the individual is bound to get 'used' to the situation or develop an apathy towards the offensive odour (Kalanit, Grill-Spector (2014), Zihl (2014) and Bar and Bubic (2014). The inter-bodily resonance has taken place as the expression set in motion through waste burning has created an impression on those experiencing it (see related substantiation in Froese and Fuchs 2012).

5.5.3 Infrastructural facilities

Infrastructural facilities in the area that are directly/indirectly impaired by indiscriminate waste disposal include roads/street corners, moats, public open spaces such as schools, markets, and vacant residential sites. These places and their immediate vicinity have become safe havens for the disposal of refuse, of which the accumulation over time has resulted in flooding, which normally lasts for several days (see Figures 5.9 and 5.10), and in some cases for months on end, thus making some parts of the settlement inaccessible.

Of prime importance are the foundations of individual buildings, which get continuously undermined by the rainstorms, and some are on the brink of falling apart, thus posing the risk of collapse, which only becomes evident at the end of the wet season. At



Figure 5.9: Old Benin-Auchi Road showing vegetation and the gathering of stormwater



Figure 5.10: Osagiede-Agho-Ighekpe Road, A major road in the settlement

specific sites, particularly where the moat is somewhat deep, it serves as a drainage canal to convey and retain stormwater. Due to the study area being within low-lying topography, the unattended refuse possibly results in leachate percolation, which affects underground water. The additional failure of government to provide potable water for the residents has given rise to the drilling of boreholes by resident landowners who are oblivious of the harmful effects of leachate percolation. Leachate contains heavy organic and inorganic compounds, which can contaminate underground water that serves as potable water, and can impinge negatively on the health status of the residents. Leachate can contaminate water, soils, and foods grown on the contaminated soil. The high risk of contracting diseases and contagion trigger the age-long practices of cleaning and washing, which are still being taught in the various homes and in elementary schools.

5.6. LIVED EXPERIENCES AND CONSCIOUSNESS OF HEADS OF HOUSEHOLDS ON PEB/WASTE DIMENSIONS

In continuation of the one-on-one interview conducted with five heads of households, (in line with methods and criteria presented in Section 3.4.5) this section analyses their responses, as presented in the following sub-sections:

- Demographic information of heads of households
- Significant statements (horizons) which relate experiences of mother-tongue language with waste and attitudes with PEB/waste
- Themes that emerge from the clustering of the responses into meaning units for mother-tongue language and PEB/waste experience
- Examples of individual participants' textural and structural description of these experiences
- Composite description which represent the essence of experience of PEB/waste to PA

5.6.1 Demographic information of heads of households

Table 5.13 presents the demographic information of the five heads of households who were shadowed for a period of five weeks with regard to mother-tongue language as it relates to PEB/waste dimensions. Of the five heads of households interviewed, four

were males and one female. This situation aligns with the patriarchal system, where roles and responsibilities are gender-determined. From Table 5.13, all the resident participants are married (not single parents), and their ages range from 35-62, with family size between 3-8 members per family.

5.6.2 Significant statements

Through the process of horizontalisation (see definition in Section 1.3.8) a number of non-repetitive and non-overlapping statements were derived from the interview transcripts (see Appendix 6c), of which some of the significant statements, and formulated meanings are presented in Table 5.14 in mother-tongue language. Table 5.15 on PEB/waste dimensions presents (details on how the transcripts were generated in Appendices 6a and b).

Table 5.13: Demographic information of heads of households interviewed

Participant /Gender	Age	Marital status	Religion	Education	Size of Family	Occupation	Years in residence
1. Male	53	Married	Christianity (formerly ATR)	Primary six	7	Farming	32
2. Male	45	Married	Moslem	No schooling	8	Cattle rearing	10
3. Male	51	Married	Christianity	University	7	Business	11
4. Male	62	Married	Christianity	University	5	Waste manager	12
5. Female	35	Married	Christianity	University	3	Teaching	13

Table 5.14: Selected examples of significant statements of heads of households in mother-tongue language on PEB, and related formulated meanings

Significant statements	Formulated meaning
<p>Mother tongue words and what they connote?</p> <p><i>(Iku ima ne gbe ye ehe'ya, rhunmwunda osie emiamwen)</i> <i>Refuse/waste are unwanted substances, and they cause diseases.</i></p>	<p>"Unwanted substances" and can "cause diseases"</p>
<p>Mother-tongue for the people handling waste and why are they so called?</p> <p><i>From history, it is the never-to-do-well, school drop-outs, less intelligent persons that handle waste. For example, when we say agbe-ekpo, we refer to the night soil men whom the colonial masters used to pack unwanted refuse, including excreta. If the person whose duty it is fails to carry out the assignment s/he is called agbi-ite, agbi-ihuen (meaning the dirty one), we do not like to associate with him or her. This notion extends to government officials responsible for refuse disposal, as we look down on them.</i></p>	<p>Degrading giving way to 'Us' and 'Them' category among the households and residents</p>
<p>Your experience with solid waste generation to disposal in public open space</p> <p><i>In my house we have division of labour and responsibilities; males and females perform separate functions, so also with the age. For waste matters, my wife and children undertake that responsibility, especially when the waste in the house is from the kitchen. They gather the waste in and around the house as they take turns on a weekly basis. This arrangement does not include those serving punishment for which they could be punished through the clearing of waste for the period the punishment would last. After</i></p>	<p>Wife and younger children and those serving punishment</p>

collection, we use the bucket or the wheelbarrow, depending on the quantity, to convey the waste to the moat.	
<p>Who sweeps/packs/disposes of solid waste from the house on a regular basis?</p> <p><i>There are occasions I have to compel the members of the family who have done wrong, as a way of serving his/her punishment, to sweep and tidy up the house and the compound. Otherwise, the younger children and my wife take it up as a point of duty.</i></p>	Age and gender consideration
<p>On why religious spaces/shrines are kept clean.</p> <p><i>The areas are sacrosanct to us as we accord them reverence; (oriri kevbe ohan osie ne emwan na rhe iku ye arhue ebo). Meaning, it is reverence and fear that made someone not to desecrate the shrines, otherwise s/he will incur the wrath of the gods.</i></p>	<p>Fear</p> <p>Reverence</p> <p>Incur the wrath of the gods</p>
<p>On impression and value about waste</p> <p><i>Waste breeds vectors like flies, rodents, cockroaches that contaminate food and cause diseases. Cassava peelings to feed piggery, and some push-cart vendors come around to collect some bottles and tins, which we sell to them at a very reduced rate or we give the waste freely.</i></p>	Waste breeds disease-carrying vectors. Peels of some food waste to feed animals. Others with intrinsic value sold/given away freely
<p>Any reason why the waste should be handled by a particular person</p> <p><i>We have division of labour along the lines of gender and age. Females take care of the homes while my children depending on their age assist my wife in doing the house chores.</i></p>	Home division of labour based on gender and age considerations

Table 5.15: Selected examples of significant statements of heads of households on PEB/waste and related formulated meanings

Significant statement	Formulated meanings
<p>On how comfortable in the settlement</p> <p><i>I am not really comfortable being that you are not the only one badly affected, what do you do? If others can cope apart from the light (electricity) thing, the road thing, the waste disposal too apart from the area you are looking at we do not have a waste manager covering this area. So we know how to dispose of our waste, and at times you wake up in the morning, for instance, this next compound close to me I normally clear the sides because of rodents and reptiles. I woke up one morning, to meet that somebody you know has thrown whatever there, of course, it is somebody in this area. It is because he or she did not know where to put his refuse, he decided to put it here. Until I have to clear it extensively so that if you are going to that, it would not be too close to my own house. What I used to do was a kind of path, but now I have to make it more extensive and wider so that if the person refuses to stop it would not be so close because of the smell and the nuisance the stench create and what have you.</i></p>	<p>The environment is degraded in the absence of waste management services</p>
<p>On type of waste generated</p> <p><i>The normal waste we produce here are those ashes from cooking as fire wood after that one, waste from food like eba, rice, then from the compound; we have leaves from fruit trees (like you have trees at the back house). Those are the normal waste we produce. Then normally when we go to farm, we carry cassava home, and we peel it. Then the kander is also a waste. If really I have poultry farm it is not waste.</i></p>	<p>Bio-degradable</p>

<p>Preference of waste management habit</p> <p><i>When we lump everything together. Who will now do the separation? Right now in Nigeria, we do not separate waste. Until we are now turning waste to wealth and the government is planning that seriously. Well, I am speaking from experience, I am a waste manager. I go from house to house to collect waste there is no separation.</i></p>	<p>Lumped together would have preferred separation.</p>
<p>On whose duty it is to take care of the waste</p> <p><i>Much of the waste we talk about comes from the kitchen, my wife and children take care of the waste and on a regular basis. What I do is to ensure that assignments are carried especially when I am told of a member who refuses to carry out his or her assignments. There are times we ask Aboki (scavenger with or without a push-cart) to convey the waste, especially during the wet season, others we normally dispose them at the moat.</i></p>	<p>Mother and child appear to be the household waste managers</p>
<p>Experience with public health issue</p> <p><i>I will say we are lucky because there has not been any outbreak of an epidemic. However, as individuals, we break down at times from malaria fever due to mosquito bites. This is because the area is not too clean otherwise we are not supposed to have mosquitoes which are the causes of malaria. As for cholera and other things you mentioned, I will say we are somehow lucky apart from malaria fever and typhoid fever we have not had cases of cholera at least in this area. Even though nobody will come out to tell you what he is suffering from. Assuming something like that ever happened and assumed an alarming dimension, of course, we would have been informed or got to know.</i></p>	<p>Malaria and Typhoid fever</p>

<p>What else happens in an unclean environment</p> <p><i>We cannot rule out the possibility of rodents coming into the house, but we try to reduce them by using chemical substances to ensure that the place is not conducive for them. Like insecticides/fumigation.</i></p>	<p>Vectors contaminate food can cause diseases</p>
---	--

5.6.3 Themes of PEB/Waste

Through the process of phenomenological reflection, and imaginative variation (see Section 3.4.5, Figures 3.5 and 3.6) six themes emerged that relate to participants' descriptions of their experience with mother-tongue language with waste and PEB expectations, which are:

- Words and connotation
- With people handling and what are they called
- Experience with solid waste generation and disposal
- Who sweeps/packs/disposes of solid waste
- Why religious spaces and shrines are clean, and
- Impression about and value of solid waste (see Table 5.16).

Through the same phenomenological reflection, and imaginative variation four themes emerged that relate to participants' descriptions of the experience with PEB/waste, and insights from neuroscience namely:

- How comfortable in the settlement
- Type of waste generated
- Preference for waste management habit and
- Experience with public health issues (see Table 5.17).

Table 5.16: Themes and sub-themes of mother-tongue language with solid waste

Theme	Sub-theme
Mother-tongue words and connotation	-unwanted substances -cause diseases
Mother-tongue to people handling waste	-never to do well -degrading -the dirty one (<i>agbi-ihuen, agbi-ite</i>)
Experience with solid waste generation and disposal	-At home, division of labour with wife and younger children -By member of the household serving punishment
Who sweeps/packs/disposes of solid waste	-Age consideration -Gender consideration
On why religious spaces and shrines are kept clean	-fear -reverence -incur the wrath of the gods
Value about waste	-breeds disease-carrying vectors -peels of agricultural waste to feed animals -others with intrinsic value for re-use

On mother-tongue words and connotation

At homes, there are teachings/clichés which say: “*Wa ghe gbi iku ye’vba, iku sie emiavwen*”, which means: do not throw refuse everywhere as it is the primary cause of diseases. For all five the residents interviewed, there is a clear awareness that waste is an ‘unwanted substance’, items that are of no value, end of life, meant for the dustbin (to be thrown away).

On the people handling it and what are they called

The people handling waste are looked-down on as close to second-class citizens, *never-to-do-wells*; less intelligent persons, especially persons who could not secure better jobs, possibly as a result of poor qualifications (or the lack of necessary qualifications). *Degrading*. As one of the resident interviewees contributed; ‘during the colonial era, persons without qualifications or segregated persons were used for odd jobs, including removing night soil (excreta) *agbekpo*’. Failure to do away with the waste as and when due attracts invectives that are derogatory in nature, with words such as *agbi-ihuen*, *agbi-ite* (the dirty person, some are full of dirt for a long time).

Experience with solid waste generation, to disposal in public open space

Nearly all the resident interviewees claimed that gender and age considerations determine the member of the households expected/assigned to manage or dispose of waste. However, as to the generation of waste, the interviewees agreed that the bulk of the waste comes through the cooking of food, and thus primarily from the kitchen. For this reason, a mother and her young child are commonly assumed to be waste-generators, and they should take charge of its management and disposal. Any member of the household serving punishment can also be required to take care of the household refuse. From the account of one of the interviewees; ‘anyone who has flouted the laid-down procedures is liable for punishment’. Sweeping around the house or going the distance to dump the refuse in a public open space constitutes a common form of such punishment.

On who sweeps/packs /disposes of solid waste

In this patriarchal society, gender and age considerations strongly influence the assigning of roles and responsibilities. For example, while the young female of the household sweeps the inner rooms the young male sweeps the outside (see Figure 4.3). It is also the young male’s duty to transport the solid waste to the public open spaces for disposal. Four out of five interviewees (also as heads of households) were in agreement that their spouses and the children in the household are responsible for handling waste. The only female interviewee plays the role of both the head of household, and spouse as the husband comes home once every year for six weeks. At certain times the head of the household gets involved when there is a dispute as to

whose turn it is to handle the waste. Wherever the waste is disposed of is never a critical concern for the head of household as long as those responsible do their work. Other times that the head of the household may pay attention are as when the street head or his representative calls for a meeting that would involve other heads of households. One focus group discussant contributed the following:

“Some years ago, there was a part of our street that was being eroded and not built-up, so people were throwing all kinds of dirt there. It was reported to us in the street meeting, so we took it upon ourselves to clear the place. Moreover, we made a law that nobody should put refuse there again and the people that were very close so we asked the *Okaidunmwunmwun* of that street to warn his people that we suspect that they could be the ones polluting the area. That any waste we see there again we hold that street responsible. Moreover, that decision help us to manage the situation.”

A1.1 focus group discussant February 18, 2017

What was not evident in the response was the status or the age group of persons that polluted the area. However, from field notes, especially during the shadowing of households from generation to disposal, it became evident that young lads between the ages of five to twelve, or occasionally their mothers, were the ones primarily responsible for the refuse disposal.

On why religious spaces and shrines are kept clean

One of the heads of a household (also a waste manager) echoed the popular saying ‘cleanliness is next to godliness’, while others cohered towards the mother-tongue expression *oriri kevbe ohan osie ne emwan na rhe iku ye arhue ebo*, meaning it is because of fear and reverence that the place of worship is not desecrated. Besides the fact that it is a public place, people, societies or groups are assigned to maintain the precinct. One resident interviewee responded: ‘I am a member of one of the church societies; we take turns to maintain the church’. Another interviewee responded: ‘we hold our place of worship in high esteem, we believe God dwells there, and sees all of us’.

On the impression and value of waste

Responses from the resident interviewees cohered towards a general awareness that waste breeds disease carrying vectors like houseflies, cockroaches, rodents, and mosquitoes. However, animals feed on the peels of some agricultural waste like plantain, cassava, and yams. Others demonstrated awareness of the intrinsic value

associated with the reuse and recycling of some waste types such as bottles, and some bottle tops.

Table 5.17: Themes and subthemes of waste associated with PEB

Theme	Subtheme
Interviewee comfortable	-Not comfortable -environmental degradation due to absence of waste management services
Type of waste generated	-Mostly bio-degradable
Experience with public health issue	-Malaria -typhoid fever -diarrhoea -Dysentery
Other issues with unclean environment	-vectors; houseflies, rodents transmit Lassa fever

On whether the interviewee is comfortable in the present location: From the head-of-household interviews, none of the interviewees appear to be comfortable, except for one head of household (aged sixty-two, a medium-income earner, who has spent 12 years in the settlement); with a family of five, he grudgingly accepts to be at ease with the situation of things, but this is not without some misgivings. The interviewees attributed their displeasure to various contributing factors, such as power outages, seasonal roads, flooding, and inaccessibility during the wet season, and the indiscriminate waste disposal due to inadequate municipal waste services (with the attendant consequences of stench, and health implications). The general picture is that of helplessness, a negative outlook about the present, and a far less hope for the future (hopelessness). Other than personal efforts with occasional street/community initiatives, the residents are sad and overwhelmed with happenings alluded to and demotivated as the area is tending towards being abandoned and forsaken.

On the type of waste generated: Bio-degradable waste appears to be in abundance compared with other forms of waste as the field notes and the measurements demonstrate (see Tables 5.7-5.11). Remnants/waste of staple foods like *eba*, cassava, rice, yams, and beans are in abundance when compared with other types of waste. One crucial element is the use of cassava peels/skins to feed pigs, plantain peels/skin for natural soap, and palm kernel nuts for body lotion (although on a small scale only as the mode of production appears crude, and the demand is low). A 53-year-old farmer, with a household size of seven, owner-occupier, an indigene who has spent nearly all his life in the settlement, has this to say “*Then normally when we go to the farm we carry cassava home, and we peel it. Then the kander (peel) is also a waste. If I have a poultry farm, it is not waste*”.

The impression created here is that inspite of their limited knowledge, and technological limitations some of the residents are quite ingenious, as demonstrated by the thoughtfulness of the respondent farmer. The idea of being resourceful, corroborates the findings of Ekere, Mugisha and Drake (2009) on the activities of farmers in Uganda to reduce waste generated, and also save on the money used to buy feed, thus allowing for a win-win situation. The neural correlates responsible for this innovative action are the OFC, orbito-frontal cortex, and the motor neurons as they are fully engaged in this venture. The OFC is used for concentration, problem-solving, planning, and speech motor control (see Appendix 8). The problem being solved in a goal-directed fashion by one resident could be replicated by others, with mirror neurons implicated as observing actions, and the related execution of similar action, share an overlapping neural network.

On experience with public health issues: Interviewee responses cohered in an awareness that their environment is squalid, and for that reason the outbreak of malaria fever is no longer news, as it has become a regular crisis in the settlement, but is now escalating into vomiting, high fever, loss of appetite and even death.

The contribution of one of the interviewees summed up the views expressed by other heads of households “However, as individuals, we break down at times from malaria fever due to mosquito bites”. Other heads of households reported other public health issues like diarrhoea, dysentery, and cholera epidemics, which happens once in a

while. Sicknesses like diarrhoea or dysentery is the result of the consumption of food substances, with contamination through the housefly as the primary vector.

On what else happens in an unclean environment: Participants' responses cohered on the influx of rodents whose presence and breeding is facilitated by the unclean environment, and tend to perpetuate itself with adjustment to their new habitat. The activities of rodents in their host settlement is not in any way complimentary, as of late of diseases caused by rodents, especially the deadly Lassa fever, has become endemic, and a perpetual public health concern.

Resonating with Visschers, Wickli and Stegrist (2015) on behavioural change as being constituted of intention, motivation and willingness/control over one's behaviour, these factors seem to be lacking in the settlement, and hence the ongoing indiscriminate waste disposal. Though some of the residents might have the predilection and intention to maintain their surroundings free of litter and waste, others seem to be trapped in the habit of indiscriminate waste practices, to the extent where by mimicking/imitating that becomes the predominant behaviour. This also seems to corroborate the broken window theory, which holds that 'degraded surroundings can degrade behaviour' (Holden 2008), and neuroscientifically, in action-oriented perception activity in that what we do depends on the meaning we assign to what we perceive.

In the course of the phenomenologically-guided interview, a respondent head of household complained about why I constrained them to separate their waste when there is neither the incentive nor the motivation to engage in such practises. Besides, all waste, whether degradable or non-degradable, is lumped together in the final analysis. This seems to signify expectations of externally availed incentives, as to PEB expectations of intrinsically driven behaviour.

5.6.4 Textural descriptions

Consistent with the process of transcendental-phenomenological-reduction, a textural description of the meanings and essences of the phenomenon of mother-tongue language about waste, and PEB/waste experience was obtained (see Section 3.4.5, Figures 3.5 and 3.6). The description of 'what' was experienced (Moustakas, 1994)

with regard to the heads of households' experience in dealing with waste, while continuing to stay in the settlement.

This section presents participants' textural descriptions of the residents' experiences with regard to the effects of indiscriminate solid waste disposal. While these descriptions constitute verbatim transcribed interview responses, a composite textural description of their experience with indiscriminate waste disposal is subsequently consolidated from the narratives of individual respondents.

Individual heads of households' textural descriptions

From a synthesis of themes of and the meaning units of each head of household's experience of solid waste, individual head of household's textural description is constructed. Box 1 presents the experience of a participant when asked about the public health issue. This passage is selected because it brought into focus what an average resident is likely to experience daily. However, the residents have not made a concerted action to stem the tide of uncomplimentary stench that has given the settlement its prevailing image of filth.

Box 1: Example 1 of a head of household's textural description of public health issue caused by indiscriminate waste disposal

When asked to relate the experience of public health issues like typhoid fever, cholera, bacillary dysentery or diarrhoea —
It is not good at all (have you experienced it), no, but when I pass through where they dump waste products the odour is so bad. I believe that odour will cause cholera even cause malaria fever (what you are saying it is a conducive environment for mosquitoes to thrive). Yes, Mosquitoes must surely fly from such areas.
He asserted that mosquitoes, the common cause of malaria fever, could breed in such locations as they are safe havens for them to thrive in.
You have not seen that, you have experience it yourself?
Yes, yes
For members of your household, you have not experienced malaria fever?
That one is minor that one is general, that one is general (I thought you were immune to malaria fever?) no that one is general.
Because of the prevalence of malaria fever, the interviewee sees the sickness as 'minor'. The import of this statement is, therefore, that since the sickness occurs regularly, residents are not alarmed when a member falls sick. Malaria to them is what they have come to accept as an 'inevitable' they have to live with.

Box 2 presents responses of another interviewee in response to the public health question related to the indiscriminate waste disposal. This head of household has his residence besides an open space with weeds and shrubs (see Figures 5.11a. and b).

Box 2: Example 2 of another of head of household's experience with public health issues

Like you have said, apart from malaria fever, we can attribute it to the grasses we have around, the stagnant water?

Yes

That is not all, don't you know that the waste they deposit not too far from you, the waste close to the moat, that there are vectors like house-fly, like rodents that will take something harmful from the bush and bring it to the house, contaminate whatever you have at home unknown to, you eat and one is infected?

We cannot rule out the possibility of rodents coming into the house, but we try to reduce them by using chemical substances to ensure that the place is not conducive for them. Like insecticides and fumigation.

In addition to mosquitoes, houseflies, and rodents other vectors responsible for the transmission of diseases are prevalent in the settlement. One of the very deadly diseases through rodents is Lassa fever.

Composite textural description

According to Moustakas (1994), the composite description depicts what the five heads of households as a whole experienced with environmental degradation as a result of indiscriminate solid waste disposal. The themes and invariant meaning units of each of the heads of household's experience of public health issues (among other effects of environmental degradation) were synthesised into a composite description of the textures of experience, as presented in Box 3.



Figure 5.11a and b: A homestead beside an unauthorised (developing) waste dump.

Box 3: Composite textural description of PEB/waste outlook

The indiscriminate waste disposal practices evident in the settlement are shallow burial, open-air burning, dumping in unauthorised places, collection by push-cart vendors, and scavengers, and open-air dumping behind the house (*otiku*). Expressions such as '*otiku*'; or '*launch into stormwater*', that the immediate vicinity could evoke *bad smell*; or '*bad odour*', *erosion prone*, *agbi-ihuen* or *agbi-ite* were used when heads of households spoke about their experience with indiscriminate waste disposal and the outlook for the environment. Apart from individual compounds which are swept almost daily the roads leading to such houses are inundated with accumulated refuse, which emits foul odours. The *otiku*, road junctions, and moats are ready sources of pungent smells.

The heads of households contended that with each passing year the quality of air and the look of the surroundings had deteriorated steadily. In addition to indiscriminate waste disposal, the wet season with an almost uninterrupted rainfall for seven months compounds the already bad situation. The immediate effect of this happening is the relocation of some residents, especially those who have the means. The account of a key informant sums up this experience: *Our neighbour on this side, an Hausa man, have relocated, the one on this side approached us to buy his property because of the erosion, I talking to you would like to relocate as well*'. What the key informant was saying is that during the wet season, there is the twin problem of being waterlogged, and the accumulated refuse, which results in an unbearable stench that fills the air.

The degradation of the environment presents a breeding ground for vectors that transmit diseases, thus facilitating them to thrive. Mosquitoes, houseflies, and rodents are common. For the residents, the fact that a member of his/her household has contacted malaria fever is no news, as the sickness is prevalent during the wet season. Other public health issues are diarrhoea, gastroenteritis, and of late Lassa fever. The presence of the cattle market and the activities of the handlers (who lead the animals to neighbouring communities to range freely in search of edibles) compound the already hazardous phenomenon. The damage wreaked by the animals to farmlands, and the dung and urine passed at various intervals gives the settlement an image of filth and stench.

Given that the waste is not sorted at either the generation or at disposal points presents a mixed bag of all sorts of refuse, some that will decompose quickly, while others are non-degradable, especially the plastic items. Other non-degradable waste includes e-waste, textiles, metals, aluminium, and glass. However, the most common waste generated in the settlement appears to be plastic, as alluded to in all platforms of the data collection stages (observation, focus group discussions, key informant interviews, and the one-on-one phenomenological interviews). Perhaps the account of a focus-group discussant sums up the ubiquitous use of plastics: *'anything you buy is enclosed/packaged with cellophane (plastics) and since we do not pay for it, we throw them away after use'*. From the ethnographic observation, with time there is an accumulation of plastic, such that the wind transports the lightweight items from neighbouring settlements to Urora, and beyond.

The humid nature of the environment, coupled with the loose composition of the soil, have paved the way for ants to thrive. These ants attack wooden electricity poles and shorten their lifespans. Other infrastructural facilities negatively impacted by the waste condition in the settlement include access roads, individual houses, and business premises. The owners of such businesses and the occupants of the houses count their losses each time the settlement experiences a prolonged wet season.

For many of the residents, feelings of discontent, hopelessness, helplessness, despair and disapproval engage their minds with regard to the future. Even though they are not satisfied with the way, the environment is, they seem to lack the will-power to initiate meaningful change. Added to this, they also seem to lack the financial resources and knowledge base on how to generate wealth from the waste. For these reasons, their lot is not improving at all, rather, each day presents an escalating challenge as the settlement grows in numbers, and density.

5.6.5 Structural descriptions

Given the imaginative variation, reflection and analysis, a description of structures of the experience of staying in the settlement with indiscriminate solid waste disposal is developed. This aspect concerns ‘how’ the residents (based on the responses of the heads of households, focus group discussants, and key informants) experience the effects, and how they participated in waste management/disposal (see Box 4). Since structural description pertains to conditions, situations or context, this description will also include the neuroscientific insights on the related body, brain, and environmental interactions.

Box 4: Composite structural experience of PEB/waste outlook

The experience of PEB/waste by residents in the settlement is primarily anchored in the perspectives of the provision of the municipal waste management services, and regulations as well as the strong PA exhibited in the locality. Each passing day the residents experience stench from the deplorable environment as they dispose refuse through their common practises of open-air burning, shallow burial, and open dumping in unauthorised places. Their sense of hopelessness and despair has increased, considering the avalanche of refuse with the attendant public health challenges.

With its limited finances, the municipality has involved private waste managers in the waste management service, but their combined efforts cover a mere 25% of the area. Given the seasonal nature of the roads, even this figure is not met during the wet season for as a substantial portion of the area is flooded for about seven months of the year. This experience affects the residents psychologically, and to the extent that some of them longed to relocate to a more environmentally attractive location.

The settlement has a rich pool of PA activities with marriages, burial, feasts, festivals, and church activities that strongly anchor the co-existence of neighbours. These activities are object-directed and action-oriented and activate related brain networks as the residents interact to perform these functions in their life-world contexts.

5.6.6 The essence of the PEB/waste outlook

With the integration of the composite textural descriptions and the composite structural descriptions comes the derivation of synthesis of the qualities, the meanings, and the essences of the PEB/waste engagement. This sub-section presents the essentials of the phenomenon of PEB/waste discourse of the residents. Box 5 describes the universal experiences of the residents to PEB, and waste management/disposal.

Box 5: The essential structure of PEB/waste outlook

The indiscriminate waste disposal in the settlement has brought into the spotlight the inability of the municipality, and other stakeholders to manage the refuse. With increasing population and urbanisation, the enormity of the problem is becoming ever more complicated, as demonstrated by the poor public health conditions, and regular flooding of the settlement.

With the residents' strong place attachment as anchored in social functions amid environmental degradation, certain human brain networks are activated in the discharge of the activities, while dissociating with neural networks engaged in experiencing the waste conditions. When equipped with adequate knowledge and responsive technology, refuse has the potential of conversion to renewable energy, among other valuable resources.

The essence of PA, PEB/waste and the residents' experiences/practices would be to bring to fruition the reasoning faculty of residents to engage with their environment, and meaningfully overcome inadequacies as well as obstacles to their everyday living, thus enhancing their experiences and quality of life.

5.7. KEY SUB-FINDINGS AND RELATED CONCLUSION

From the term PEB, as understood by Larson *et al.*, (2015), residents were expected to maximise the use of their environment through environmental conservation, and stewardship, among other practices and behaviours. Accordingly, with the identification of factors that influence the adoption of behaviour that minimises ecological harm, and supports natural resource conservation, the residents appear to inadequately understand human-environment interaction within the settlement. With a substantial proportion of the households disposing of their waste in the form of shallow burial, open-air burning or illegal dumping the minimisation of ecological harm to the residents leaves much to be desired. Arising from such behaviour/practices, global concerns such as climate change and greenhouse gas emissions (GHGs) in this settlement (and other settlements of similar characteristics) seem to them to be an extremely remote risk/hazard. The absence of municipal waste infrastructure (such as waste bins and transfer stations) compounds the problem of waste accumulation within such settlements.

The waste generated at homes and observed at the various disposal points, vary in content, and composition. While the generated waste is mainly biodegradable, it is almost exclusively the non-degradable type that accumulates at the disposal points,

where the degradable type putrefies, and decomposes naturally, leaving behind a trail of stench.

During the wet season, with its relatively flat terrain, the problem of waste disposal practices in the settlement is further compounded as large tracts of the area is submerged, thereby hastening the decomposition of some of the waste, which in turn escalates the release of pungent smells to the atmosphere. Apart from encouraging the breeding of mosquitoes, the waterlogged environment contributes to the degradation of the settlement, to the extent that some locations become impossible to access (either by foot or vehicle). Given the recurring condition of waterlogging with the resultant breeding of mosquitoes, the public health impact of malaria fever has almost become endemic in the settlement.

From the preceding, the researcher was not surprised when the residents said they were displeased with the state of affairs in the settlement. Apart from the accounts of the residents, the four months' stay in the settlement during fieldwork yielded sufficient phenomenological perspectives for the researcher on everyday life impacts/experiences in the settlement.

Given the summary of findings based on the various research data tools as presented in Tables 5.4, 5.5a, b and 5.12a, b, and the accompanying images, rather than see solid waste as a resource, the residents and the municipality are yet to harness it through responsive initiatives such as separation at source, the 3Rs, composting, or for renewable energy. Instead, they continue to see the waste as a problem, a burden to surmount, or something to eliminate, a challenge, and a hurdle they wish to cross. Inadequate worldview/understanding, and lack of political will were some of the constraining factors preventing residents from taking full advantage of the opportunities present in their waste environment. Apart from the traditional use of natural soap from plantain skins, and palm kernel seeds to make body cream and oils, there was no systematic demonstration that the inhabitants have innovated their way to maximise the use of their waste streams as an invaluable resource.

Unfortunately, these home factories of natural soap and body lotions have struggled to stay in business, as they are unable to match or withstand the sophistication and the lure of the modern mass-produced products to meet the ever-increasing demand

of the populace. Another critical shortfall is the lack of the relevant knowledge/understanding as it affects community-driven waste management initiative has impacted negatively on residents, as is evidenced by the ubiquitous low-density polyethylene (LDPE) plastics found everywhere that can be converted into a valuable local resource. Given the data presentation and analysis, it appears PEB is still in infancy as there are no concerted efforts for resolving the waste issue at either household, community or municipal levels. And yet, in spite of this critical inadequacy, residents continue with their PA enhancing social-cultural practices.

Given the central research question, and the theoretical underpinnings of the study the underlying drivers that perpetuate contradictions between strong PA and weak PEB can be identified. They range from inadequate understanding among the residents of the handling of waste (as is evident from the unwholesome methods of disposal to unhealthy living conditions) against a backdrop of the inadequate provision of infrastructural facilities by the municipality. From a PEB perspective, residents have not maximised the use of their environment through environmental conservation/stewardship, among other responsive initiatives. The absence of waste bins and transfer stations further compounds the problem of waste, which thus raises the critical need for community-driven PEB-guided practices.

CHAPTER SIX

DRIVERS OF CONTRADICTION/CONFORMING CONDITIONS AND SUB-FINDINGS

6.1 INTRODUCTION

The primary focus of this Chapter is to appraise the commonly held view/understanding that a strong PA correlates strong PEB with the corollary that weak PA correlates positively with a weak PEB. It equally follows that if the first statement holds, then a strong PA suggests that residents are more amenable to imbibe PEB such that the problem of indiscriminate waste disposal would not be sustained.

6.2 DATA OVERVIEW AND PRESENTATION

This Section is similar to the pattern of data overview and presentation in Sections 4.2 and 5.2; the major difference is the case study of 5 heads of households that were shadowed as referred to in Section 3.4.5. In the presentation, some set of sentences carrying different meanings about target places were identified as a reflection of interviewee's experience of the waste condition. This aspect was in addition to pie-chart, tables and maps.

6.3 CURRENT PATTERN OF PA *VERSUS* WASTE CONDITION

Given this background and the research tools and data engaged, what are the current patterns of PA *versus* the waste condition in the settlement? The reasons are presented under the sub-areas and summarised in Tables 6.1a and b and are also highlighted as follows;

- Heterogeneous/multi-lingual community
- Living conditions/attitudes of residents
- Climatic conditions
- Absence of waste management facilities
- *Laissez-faire* attitude of Government

Table 6.1a: Summary on interview analysis and research tools on contradictory/conforming sub-questions

Contradictory/conforming sub-questions	Ethnographic observation guide/questions schedule	Focus Group/Workshop Guide Schedule	Key Informant/actor	Household interview
1. What is the current pattern of PA <i>versus</i> waste-condition (contradiction - strong place attachment and weak/poor waste management/disposal practices Or conforming - strong place attachment and strong waste management disposal practices)?	<ul style="list-style-type: none"> -Heterogeneous/ multilingual settlement -Climatic conditions -Absence of waste management facilities -<i>Laissez-faire</i> attitude of Government 	<ul style="list-style-type: none"> -Lack of cooperation from a particular group of different ethnic extraction -Lack of adequate knowledge of the value of some type of waste 	<ul style="list-style-type: none"> -Country is developing as separation at source is yet to be encouraged -Everything is lumped together. -Perception of waste workers negative as they are regarded as drop-outs from schools. -Illiterates with little knowledge of hygiene 	<ul style="list-style-type: none"> -Ritual I like best is quiet enjoyable but waste generated and effects conflict with this enjoyment

Table 6.1b: Summary of conforming/contradictory activities with theoretical/interpretative perspectives

Research question	sub-	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from neuroscience/region of central nervous system
What is the current pattern of PA versus waste-condition (contradiction -strong place attachment and weak/poor waste management/ disposal practices Or conforming -strong place attachment and strong waste management disposal practices)?		<ul style="list-style-type: none"> • Preliminary data on participants • Heterogeneous/multi-lingual community • Living conditions/attitudes of residents • Climatic conditions • Absence of waste management facilities • <i>Laissez-faire</i> attitude of Government 	<p>Life-world, inter-subjectivity</p> <p>being-for-itself, but a being-for-the-other</p>	<p>Relationship between cognition, experience, consciousness, embodiment and culture.</p> <p>Somatic modes of attention</p>	<p>Mirror neurons, object-directed actions, action perception at the Broca cavity of the brain olfactory monitors neuron of the nose affected from the generation of flood as the water canal overflow their banks and the stench from the waste registers at the olfactory bulb.</p> <p>Habitual responses employed during meetings as there is regular pattern of conducting meetings cortex of the stratum and basal ganglia</p>
	-		being-for-itself, but a being-for-the-other	All human perception and experiences are mediated and integrated through the central nervous system explains many of the cross-	Goal-directed behaviour, loud music negatively affect auditory neurons of the brain

Research question	sub-	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Insights from neuroscience/region of central nervous system
				culturally aspect of religious beliefs and imagery	
				Somatic modes of attention.	Human visual cortex with the aid of fMRI, prefrontal and posterior visual cortex, in our top-down direction

6.3.1 Heterogeneous/multi-lingual community

Urora community accommodates residents from different ethnic groups with different cultural and traditional belief systems and backgrounds. As at the time of the fieldwork the resident-indigenes were far less than the resident non-indigenes and estimated to be at a ratio 1:5. For this reason, the traditional social-cultural structures anchored on age-grade/group and the kinship networks appears to have weakened significantly and overwhelmed with the numerous challenges of their traditional functions of maintaining the environment. Without a standard, a united and cohesive reference framework to attend to environmental problems people feel they have been left on their own.

Added to the preceding is that the resident non-indigenes owe allegiance to their hometowns (they have a home elsewhere and that they are in transit at their present place of abode). One of the participants compared the situation to a place he once worked for years with a homogenous community. When he said “unlike *Urhonigbe* with strong PA and strong PEB, where they make use of age-grade and kinship networks, your next-door neighbour is your relation which you interact and felicitate with on a daily basis, you would not like to pollute the area because you are equally affected and may as well be reprimanded”. During the field work once-monthly or bi-monthly regular meetings of residents who share ethnic backgrounds were witnessed. Such meetings were held regularly and rotationally along the guidance of the respective group’s hierarchical structure of executives including chapters and branches of their associations.

Some of the activities engaged by these associations include the welfare of members especially in job sourcing, marriages, burials, thrift collection, cultural displays, and end of year get-togethers as well as the settling of disputes amongst members. One such service of the associations is the coming together with other sister unions for a project to be sited in their hometown (could be a block of classrooms or water project among others). At such meetings, the language of communication and expression is the local dialect spoken in their respective hometown or village. With these group of residents loyalty and interests the ensuing condition facilitates a weak PA which correlates a weak PEB activities- thereby favouring conforming conditions.

6.3.2. Living condition/attitude of residents

Analysis in Chapters 4 and 5 have highlighted the *non chalant* attitude of residents to solid waste management, to the extent where some unscrupulous residents 'see' the stormwater as an opportunity for launching or disposing of their waste. This attitude to their habitat/surroundings discourages other residents, who have a positive disposition to maintaining the settlement, and is, therefore, the main reason why the residents regularly clean up their surroundings, but ignore cleanliness in the other areas such as the adjoining roads leading to the house.

Given the high rate of urbanisation, there are no more vacant land parcels in the community. Some residents have, therefore, resorted to selling land close to the moat or, in some cases, fill up the moat with sand. The worst culprits in this regard are the privileged resident-indigenes who, for personal monetary gain have resorted to filling up the moat. The next in line as critical culprits are the so-called nomadic herders with their strong PA but weak PEB. Their way-of-life implies that they live closely with their herds of cattle, they bath and defecate in the open, and also lead their herds to roam the streets in search of edibles, as can be seen from Figure 6.1.

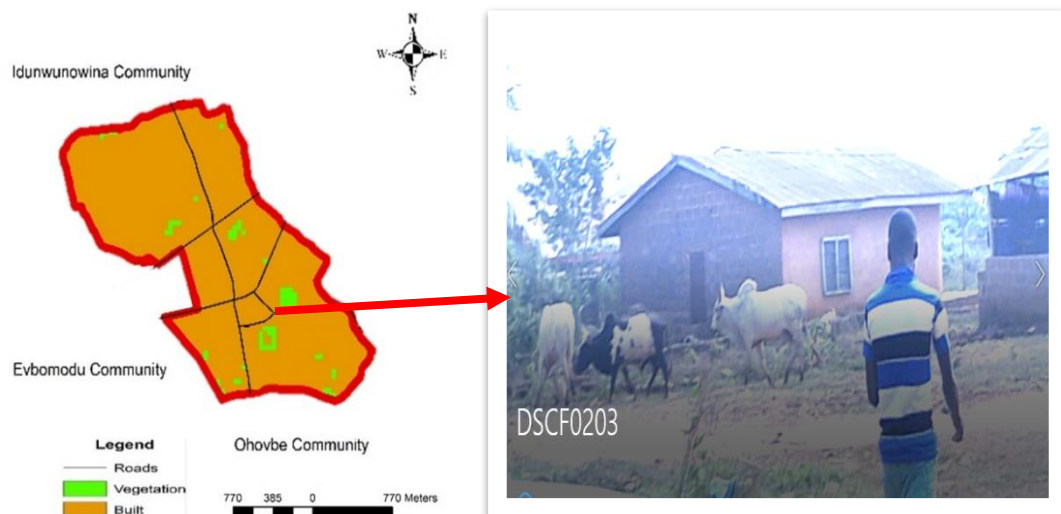


Figure 6.1: Cattle roaming the streets have become a regular feature in the community

6.3.3 Climatic conditions

Living in the rainforest zone, and on low-lying terrain, presents multiple problems. First, the area is flooded for a long time, especially at the peak of the wet season. Second, the non-provision of roadside drains accentuates the already degraded situation as the road space infrastructure serves the twin purposes of access, and drainage. It is estimated that about 60-70% of the total land mass of Urora is submerged whenever it rains. This percentage was alluded to by the key informants and corroborated by other residents during the ethnographic fieldwork and the phenomenologically-guided interviews. To further cast light on the level of submergence, for over five years a portion of the Benin-Okene-Abuja express road that runs through the settlement was always flooded before it was elevated (see Figure 6.2). Figures 5.10 and 5.9 indicate the level of submergence. With the fairly flat terrain, the wet season is dreaded by some residents who reside in low-lying areas, and some of have abandoned their houses.

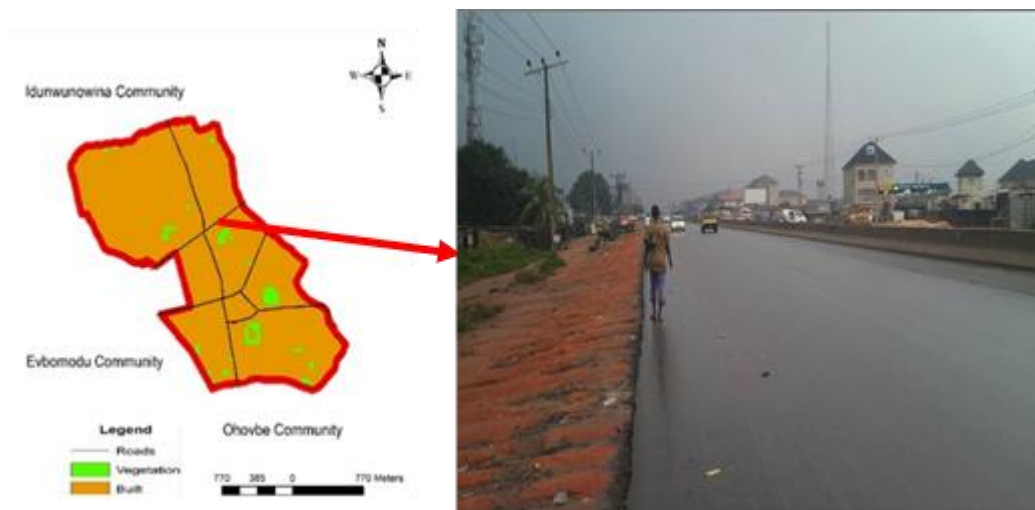


Figure 6.2: A section of the Benin-Okene-Abuja highway at Urora

Another critical factor, especially during the wet season, is the ceaseless production of the stench of cow dung, and sheep droppings washed and transported by the stormwater from the open cattle ranch and market located in the eastern part as well as other sections of the settlement. Given the filling-up of some portions of the moat

(which was supposed to serve as the main drainage), during the rainy season the stormwater frequently overflows its banks, submerging the adjoining areas. Residents of the low-lying areas who receive an unquantified amount of water occasioned by stormwater, as well as air pollution from the open-air burning of waste, complained about their inability to maintain decent living conditions as this process negatively impacts their respiratory systems. The continuous exposure of the residents to these hazards renders them predisposed to communicable diseases from animal-to-human and human-to-human.

6.3.4 Absence of waste management facilities

Data from the fieldwork, (key informants, focus group discussants and one-on-one interviews) builds towards the consensus that the community is interested in the public waste dump, but the government appears not to have discerned that aspect. Even with appointed private waste operators, there is no provisioning of necessary infrastructure such as waste bins. As a result, school compounds, moats, markets and uncompleted structures and street corners have become alternative places where waste is disposed. The absence of such infrastructure and services thus compel the residents to litter their habitat.

In Chapters 4 and 5 of the ongoing study reference was made to the effects of plastics, and the havoc it wreaked on the settlement. Figure 6.3 shows some of the features, and gives an insight into how a typical street in the settlement feels like (other examples are Figures 5a, 5.9 and 6.3). In line with the consistent findings on habitats and behaviour ('Degraded surroundings degrade behaviour' (Holden 2008)), the persistence of environmental degradation in the settlement seems to corroborate the cited findings. The data also indicate that awareness of this vicious cycle, especially when they say "if the place is squalid, is s/he that would address it. Besides, is the place my birthplace as to make me take full responsibility?"

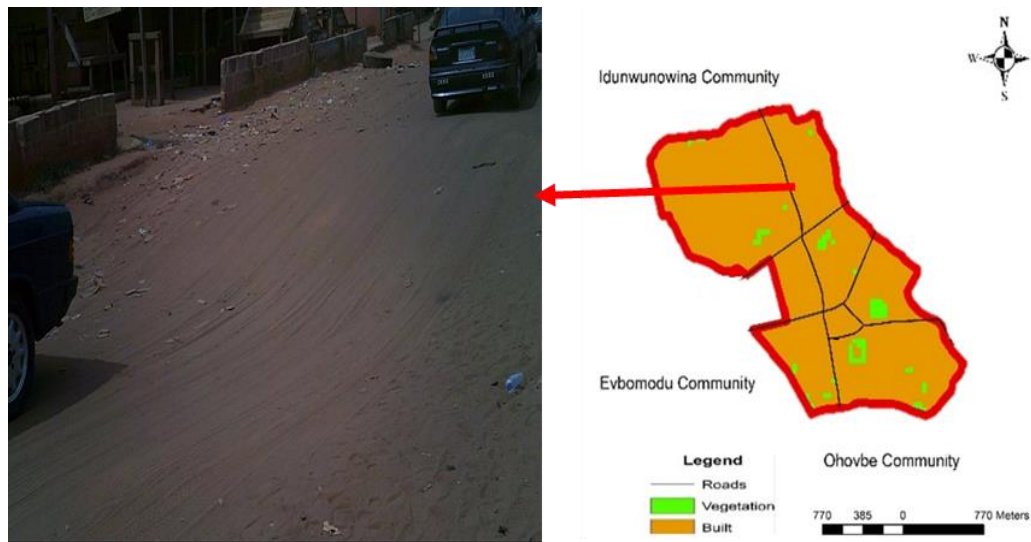


Figure 6.3: Idunmwunowina Road: note the undulating, and littered nature of the road

6.3.5 *Laissez-faire* attitude of Government

The government appears to be out of tune with the realities on the ground, as plastic bags of different sizes and colours have taken over the environment. Plastics are not degradable nor do they decompose; they remain and constitute a danger to the environment. If the non-degradable plastic substances are left to accumulate over time, they can block drains, thereby causing flooding. However, the government have laws but is yet to legislate directly on the issue (the inability to introduce price tags on plastic bags), hence the proliferation of the use of plastic for nearly everything within the vicinity and the larger society.

Given the municipality's poor legislation and implementation policy, inadequate funding, ineffective and weak municipal waste management, the lack of monitoring appears to be the bane of the waste management policy of the government. The government gives out a contract to the private waste managers, but does not monitor them to see if they are keeping to the terms of the agreement. In the words of a key informant who is a waste manager also, "they give out the contract they do not even inspect nor monitor the contractors if they are doing a good job".

This fact brings into focus the inability of the community to hold the municipality to account, and likely points to the presence of a weak PA. However, in Section 4.4.2 reference was made to two systems of power and authority in the country: first, traditional institutions (which appear to be closer to the people), and second, representative government (introduced by the colonialists and which is almost sterile), as substantiated by Ellis (2016). The issue of waste management lies at the doorstep of an arm of representative government - the municipality - which appears to be wholly inefficient and ineffective.

6.4 DRIVERS OF CONTRADICTION AND CONFORMING INTERACTIONS IN PA AND WASTE CONDITION

Given the emerging finding that Urora settlement presents a combination of both contradictory and conforming interactions in PA for solid waste to thrive, this section draws on the research tools and resultant data to identify factors that facilitate this co-existence. Tables 6.2a and b give the data, and the theoretical and interpretative perspectives, the two broad factors are;

- Religious and traditional institutions
- Cognitive dissonance, language and peer group influence

6.4.1. Religious and traditional institutions

The data and related analysis systematically show that the community is strongly religious (especially when based on the number and intensity of the use of churches that dot the settlement). At the time of the fieldwork over 31 (thirty-one) churches were recorded as serving a population of about fifty thousand people. The activities engaged in by the adherents of these religious groups, produce another crucial factor to demonstrate the closeness, solidarity and the cohesion that exists among the congregants. If the number of churches that exists is the only yardstick by which to measure PA, Urora could be said to demonstrate a very strong PA.

However, the strong PA does not correlate with PEB, as reflected in the indiscriminate waste disposal practices and behaviour. This fact also is accurate in relation to the adherence of traditional institutions like the ATR, were these worshippers seem to be

Table 6.2a: Summary on interviews of contradictory and conforming drivers and research data

Contradictory/conforming sub-questions	Ethnographic observation guide/questions schedule	Focus-Group/Workshop Guide Schedule	Key Informant/actor	Household interview
2. What could be the underlying drivers which sustain/drives this “contradictory” OR “conforming” interaction in PA versus waste-condition?	<ul style="list-style-type: none"> -Lack of knowledge of the value of the waste generated. -Religious and traditional institutions -Cognitive dissonance, language and peer group influence -Economic downturn 	<ul style="list-style-type: none"> -Lack of cooperation from residents and knowledge of the value of some waste categories. -The resident-indigenes that possess the ‘old’ are outnumbered by resident-visitors. -The language that abhors indiscriminate waste has given way too euphemistic way of things as action and intention have been separated 	<ul style="list-style-type: none"> -Cooperation among residents. -Peer group influence -The role of leaders in the ethnic communities, Church, Mosque and ATR sites 	<ul style="list-style-type: none"> -Levying regime imposed by the government -Approved manager only covers 25 per cent of residents. -Absence of waste bins

Table: 6.2b: Summary of contradictory and conforming drivers with theoretical and interpretative perspectives

Research question	sub-	Data resource parameters criteria	Ethnographic, phenomenological	Neurophenomenological	Neuroscience/region of central nervous system
What could be the underlying drivers which sustain/drive this “contradictory” OR “conforming” interaction in PA <i>versus</i> waste-condition?		<ul style="list-style-type: none"> • Religious and traditional institutions • Cognitive dissonance, language and peer group influence 	Husserl one-in-the-other. Indeterminacy collapse duality between object and subject, self and other and mind and soul	-do-	Arousal neural activity in the left amygdala, happiness evoked in media OFC

living in denial of what they claim to believe in. How can one explain that the inhabitants of the settlement who profess an understanding that cleanliness is next to godliness, persist in living in such squalid conditions? Alternatively, how could one explain the fact that with the passage of time the condition has gone from bad to worse? The answers to these questions closely relate to over-population, and the weakening of traditional institutions due to unbridled urbanisation and the residents inability to exercise choice and agency inherent in them and the community.

The situation where the population of indigenous residents is out-numbered at an estimated ratio of 1:5 has possibly weakened traditional structures, and agentic connotations meant to safeguard orderliness. Apart from the *Ikpoleki* and *Igue* festivals, other traditional ceremonies like burial, marriage and bi-monthly landlords' and landladies' associations only serve social purposes with no clear link to habitat/environmental concerns. Other performing groups include gender roles, age-grade systems based on kinship networks, and the gathering of residents who share a common purpose as other groups only exist in name. If such groups are unconcerned about the physical conditions, the environment is likely to be neglected. This situation reinforces the positions of Bell (1992), and Wiltermuth and Heath (2009), namely that without respect for the existence of sacred values the result could be chaos and moral bankruptcy. For this reason, it is not surprising to see the proliferation of refuse in almost every corner of open-space (public and private) in the settlement.

Another critical factor that could be driving the waste management profile is induced conformity. This effect is the outcome of the country's economic downturn, which has affected the size/content of the sacrifices offered to the gods. One participant alluded to this by saying, "before now the traditionalist used to offer cows as sacrifices, it reduced to goat, now they use chicken". The same fact repeats itself in the lives of the average residents who are mainly farmers, and who are becoming aware that dry cassava peelings and yam peelings have been diverted for other uses. Before this period, these items were regarded as waste and thrown away.

6.4.2 Cognitive dissonance, language and peer group influence

A significant factor that facilitates the co-existence of conforming and contradictory interactions in strong PA with the prevalence of waste, is the phenomenon known in psychology as cognitive dissonance. A good number of the residents living in this settlement parade inadequate waste management, and this situation force them to live contrary to their belief systems which emphasise that 'cleanliness is next to godliness'. It is a known fact that the majority of these persons practise various forms of religious beliefs, customs or other forms whose norms/injunctions (as alluded to in Section 3.1.4) are against indiscriminate waste disposal, and yet they live comfortably, or uncomfortably, among heaps of refuse. For decades, Urora community has governed itself through their value systems and world-views, spearheaded by their leaders/elders who have made laws for the smooth functioning of their community, and according to which some areas/places are designated as sacred, while others are assigned other uses.

Another vital factor to consider is peer group influence. As a key informant stated: "if the place is degraded is s/he that will now repair it"? Observation is that this attitude has gained currency. This feeling/impression runs very deep among the residents, to the extent that they overlooking happenings and challenges that they would ordinarily have addressed proactively.

6.5 CASE STUDIES OF 5 HEADS OF HOUSEHOLDS CONCERNING CONTRADICTIONARY AND CONFORMING CONCERNS IN THE SOLID WASTE STORY EPISODE

In Section 3.4.5, the study referred to phenomenologically-guided, semi-structured, depth-interviews (SSDIs) as the data collection tool with which to shed light on the on-going study of the PA, PEB and HHSWM discourse. Five HHHs were interviewed (3 medium-income group earners, and 2 low-income group earners). The interviewees were of different religious persuasions, and ethnic orientations can be characterised under the following sub-headings:

- Case study no.1; Urora indigene respondent, Christian, low-income, HH population 7

- Case study no. 2; Non-Urora indigene respondent, Muslim, low-income, HH population 8
- Case study no. 3; Non-Urora indigene respondent, Christian, medium-income HH population 7
- Case study no. 4; Non-Urora indigene respondent, Christian, Medium-income HH population 5
- Case study no. 5; Non-Urora indigene respondent, Christian, Medium-income HH population 3

The reports concerning the exploration of the meaning-making events as they affect PEB/waste practices are presented under the following sub-headings: waste composition and storage, transportation and disposal, and life-world dimensions.

Case study 1 Urora indigene respondent, Christian, low-income, HH population 7

The SSDI states solid waste in this household connotes discarded, useless and unwanted items. So a member of the family who is responsible for taking care of the waste is regarded to be of lower social status, and is addressed with derogatory expletives if s/he fails to carry out the assignment. The resident head of household, a 53-year-old, farmer and low-income earner, disposes of the waste after one day of storage in a cut-to-size, disused paint bucket onto the *otiku*. Given that the *otiku* is less than 3 metres away, most of the time s/he stands at the kitchen entrance and throw the waste from that point. The kitchen is detached from the house, and at the far end of the plot is the outside toilet. The space between the kitchen and the toilet is the *otiku*. The *otiku* also receives the remains of other kitchen waste like ashes, pepper, tomatoes, yam tubers (among other organic waste), and has metamorphosed into a back garden. The house structure (characterised by a roominess) represents about a third of the number of houses in the settlement with *otiku*.

While there are elements of PA as the members of the household are indigenes of the settlement, they still perpetuate the old habits of distancing themselves from the waste they generate; that waste is an unwanted element and possibly of negative value. The handling of the waste from the perspective the residents described, and experience is learned over time by householders, which possibly involves Ratcliffe's mirror neurons

(2006). This type of behaviour engages and activates neurons in the Broca cavity (see Appendix 8). With regard to the composition of HHSW, Figure 6.4 shows how for the five days the researcher shadowed the household they had a limited quantity of waste. During the SSDI with the HHH (that took place on 4 March 2017), when asked, why not sell and make money from the cassava peelings you harvested from your farm? his response was as follows:

“We do not normally sell we dash (give it out freely) it out. We call it as waste to us those who are farmers. Those who are not farmers they can easily go and buy. If you have a poultry, we can be dumping it for you when you come you can go and carry it”.

Interview with head of household March 4, 2017

-

From his statement, it is evident he has no intention of making money from waste since some residents in the settlement still adhere to the rural and primordial way of life, like giving out items freely, and the idea of trade by barter. This further strengthens the bonds they have with their neighbours, and thus they feel happy and fulfilled when engaged in this practice.

An aspect of this family which stands out is that two boys of 13 and 15 years of age take their turns to sweep around their house on a regular basis, gather the waste (which consists of plastics, among other sundry waste) and occasionally throw them in an unoccupied fenced neighbour's compound. In the evenings the front of the house is used for meetings, relaxation and as a venue for supper. This may explain why it is swept clean on a daily basis.

Figure 6.4 (which originated from Table 5.11) indicates the type of waste they generated at the time the fieldwork was conducted. Given the solid waste types, this household barely has enough to spare let alone consign any to waste. However, an exciting aspect of the waste generated in this household was the ashes on a Wednesday, when as much as 1kg was recorded (obviously mixed with some particles of sand). Most often the ashes find its way to the *otiku*, where it enriches the soil which together with other decomposed materials have improved the quality of soil and the overall productivity of the backyard garden.

Their mother and the last male child take care of the cooking, washing of dishes and kitchen matters, while the other four children (in addition to other chores) take turns to sweep around the compound on a regular basis. In the absence of the mother, the boy of 13 years, and the youngest in the family does the sweeping of the kitchen, while his elder brothers take turns to sweep around the compound on a daily basis (example in Figure 4.3). The young men are also involved in the sale of bananas harvested from the parents' farm. The lad is often scolded as an *agbi-ite* or *agbi-ihuen* (meaning the 'dirty one'), and avoided if he fails to take out the trash.

Waste type	Kg
Bio-degradable	2.00
Plastics	-
Putrescible	0.35
Paper	-
Glass	-
Metals	-
Textiles	-
Others (ashes)	1.00
Total	3.35

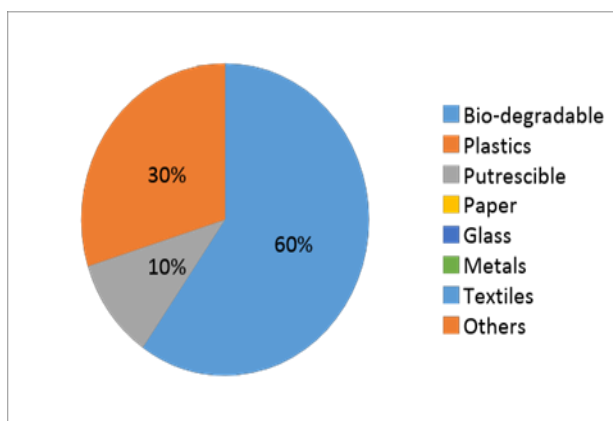


Figure 6.4: Waste composition of low-income earner indigene respondent

Other chores include the running of errands and sale of plantain and bananas from the farm which the parents cultivate. In the course of the sales of these items they also seize the opportunity to dispose of specific waste which they consider inappropriate to dispose in the *otiku*. This is often dumped in open public places such as moats, and at street corners. Figure 6.6 shows the approximate location of the household marked "1" and the likely places where they dump their waste (not less than 100-200 meters from the homestead). The disposal commonly takes place very early in the morning before 6:30 a.m. or late in the evening from 7:00 p.m. with the use of a wheelbarrow.

Case study 2 Non-Urora indigene respondent, Muslim, low-income, HH population 8

This household (head of household, aged 45, cattle herder), generates a high amount of waste, as revealed in Figure 6.5 (originated from Table 5.9). A cursory look at the Table revealed that on a Monday the household generated about 5.75 kg. (46%) of all the waste types together over the five days. One exciting aspect of this householder is that he patronises a cart-pusher(s) who by coincidence or design hails from the same geographical location as himself. Figure 6.6 shows the approximate location of his residence marked “2”. The cart-pusher collects the waste (with his itinerant nature of moving from one place to the other soliciting for patronage), and when he fills his carriage he feels at liberty to dump the waste anywhere within the settlement.

In this household, the wife stays permanently at home as she is still of child-bearing age. She organises all the household solid waste from the kitchen to the living rooms with assistance from one of the sisters and another little lad. Just as in the previous case the head-of-household uses a cut-to-size paint-bucket to store the refuse from the house. Another similarity is the derogatory attitude to waste - “it is meant for people who have little or nothing doing, especially school drop-outs and with people at the lower rung of the social status in the society”.

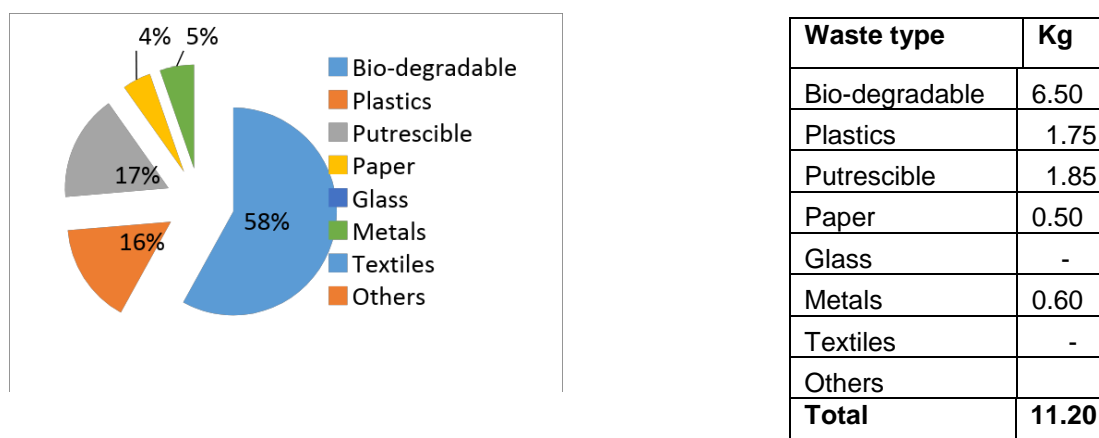


Figure 6.5: Waste composition of low-income earner, non-indigene respondent

Case study number 3; Non-Urora indigene respondent, Christian, medium-income HH population 7

The 12-year-old boy of this household and the mother oversee the solid waste management, mainly through storing the waste in a waste-paper basket for about 2-3 days. After that, they use the wheelbarrow to convey the waste and dispose off at the closest illegal waste dump, which is about 100-140 metres away from their residence. With the approximate location of the house, marked “3” in Figure 6.6, they are at liberty to dispose of their refuse in any of the nearby moat sites. However, the HHH interview reveals that they do not use the undeveloped plot adjacent to their dwelling for fear of attracting environmental pollution and health hazards.



Figure 6.6: The solid waste story of three householders

The composition of the waste presented (in Figure 6.7 which originated from Table 5.10). It reveals a fair distribution of the waste types, especially on Monday the waste was measured at 1.11 kg (which was 35% of the waste collected between Monday and Friday of the same week). Of the three households considered, bio-degradable waste appears to be predominant by weight as it includes the remains of staple food like *eba*, rice, yams, *akpu* among others.

The head of household, a 50-year-old businessman, owner of a 2-floored single-family house, clears the bushes around the undeveloped property on a regular basis so that other residents are not tempted to convert the property into a dumpsite. The motive for attending to the plot through regular weeding arose from an earlier incident of indiscriminate waste disposal on the same land. In his interview response, he notes that the settlement has witnessed deterioration from bad to worse, especially over the past eleven years he has been living in the area.

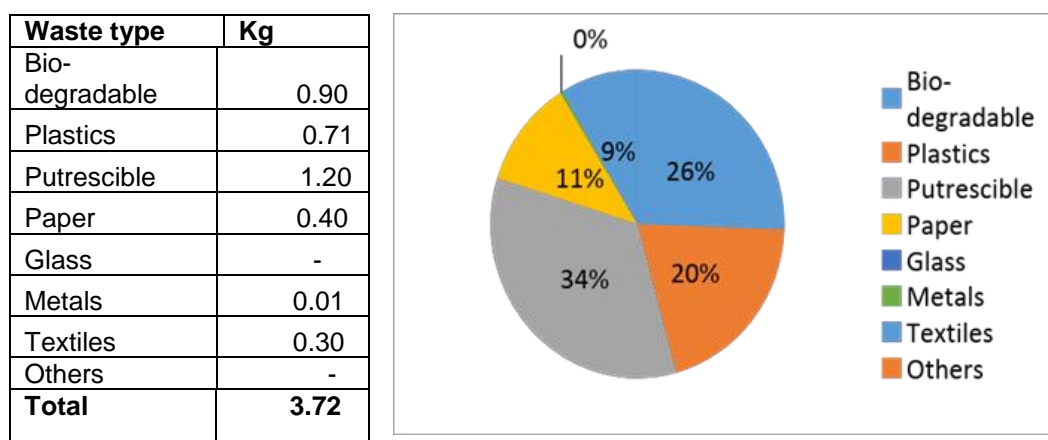


Figure 6.7: waste composition of middle-income earner, non-indigene respondent

Case study 4 Non-Urora indigene respondent, Christian, Medium-income HH population 5

The interviewee, was a 62-year-old man, who is also an approved private waste management collector for Urora. His household generated waste of different categories, as recorded in Table 5.8 and Figure 6.8. He stores the waste in a waste-paper basket and later transfers it to his 10-ton truck on a regular basis as he collects

waste from other householders for onward journey to the *Ikhueniro* legal dump site towards the outskirts of the town. His wife and one of the daughters do the kitchen and house cleaning work. This fact brings to the fore the gender-biased waste roles and responsibility in Urora community.

Figure 6.8 (which originated from Table 5.8) shows the categories of solid waste generated by this household as recorded for the period indicated. Four out of the five days his bio-degradable solid waste was most in quantity, by as much as 22.5%

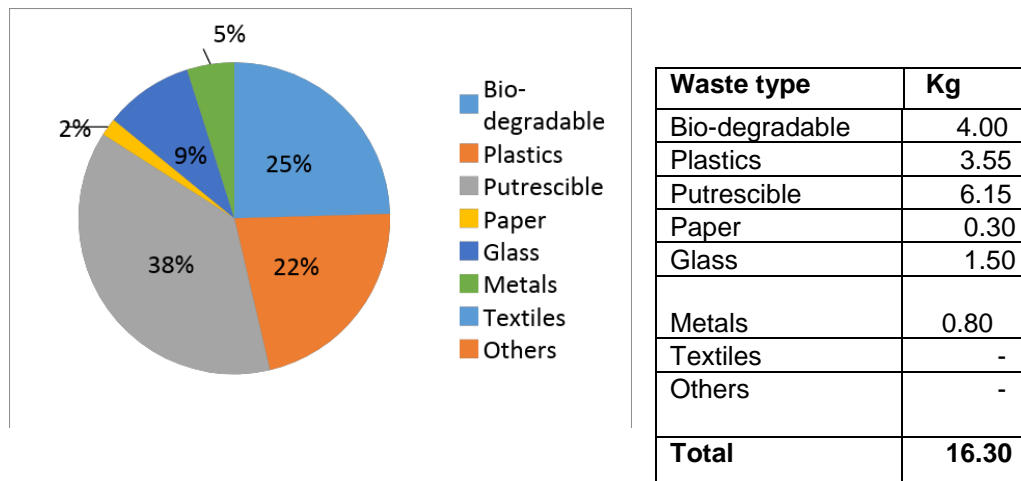


Figure 6.8: Waste composition of medium-income earner, non-indigene respondent

(4kg) and plastics of various kinds appear as the second, with approximately 19% (3.45kg). The approximate location of the residence is marked “4” in Figure 6.9. Were it not for the fact that the head of household was a waste manager, he would possibly feel at liberty to dispose of his waste on an illegal dump which is less than 50 metres from his homestead.

Case study no. 5; Non-Urora indigene, Christian, Medium-income HH population 3

The head of household is a 32-year-old female who is employed as a civil servant. She is the only female respondent to the phenomenological interview, after she was shadowed for five days at the approximate location marked “5” in Figure 6.9. The categories of waste generated by her household can be seen in Figure 6.10 (which

originated in Table 5.7). Just like other households, bio-degradable waste appears to be more in quantity (at more than 80% (7.3kg) of a total of 8.85kg of overall waste recorded within the period). The waste initially is stored in the waste-basket for a maximum of 2 days, then emptied into a large black plastic bag and later taken to a booth from where one their vehicles conveys it to the *Ikhueniro* legal dumpsite.

At other times when she has no access to transport, she makes do with the itinerant push-cart waste pickers. Just like our case study number 2, the push-cart waste picker advertises himself and solicits for patronage with the following phrase “condemn iron, condemn oil”. In addition, she has at her disposal the many illegal dumpsites which abound in the settlement (see Figure 6.9).

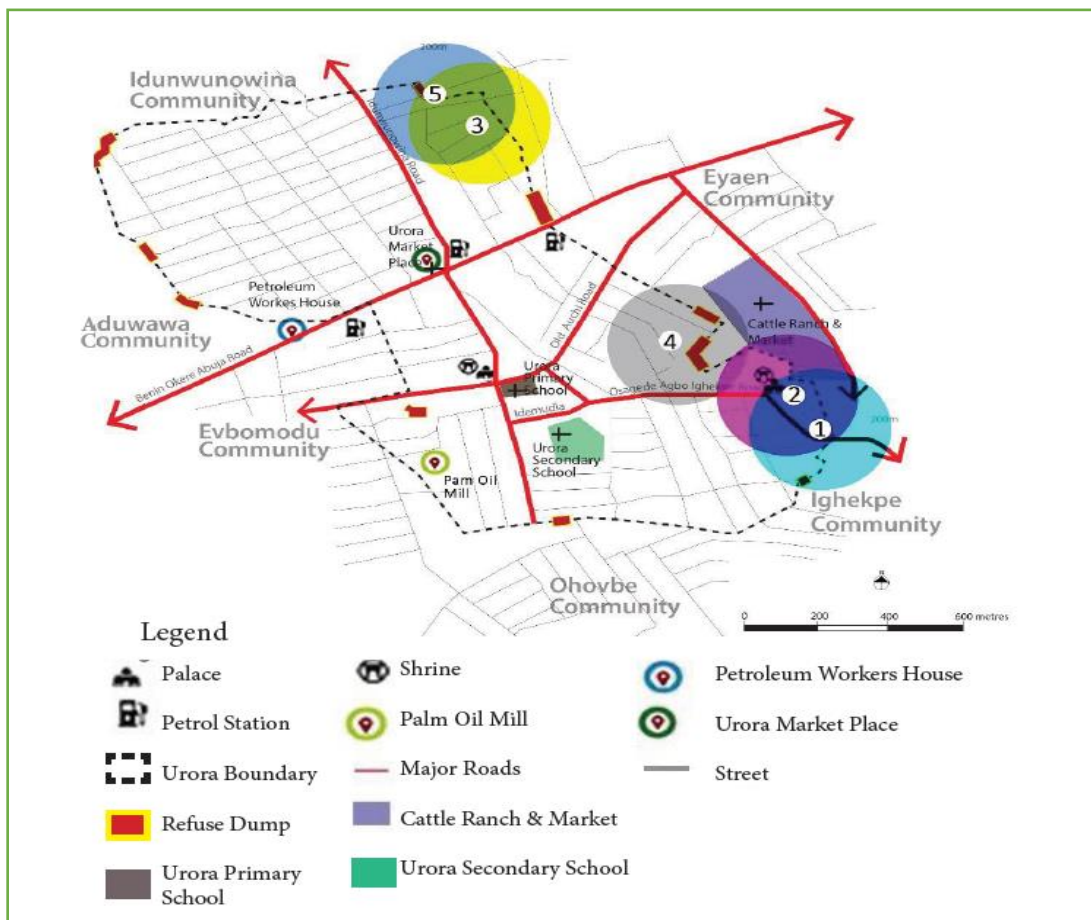


Figure 6.9: The solid waste story of five householders

Having shadowed, interviewed and interacted with the five heads of households, their experiences and treatment and handling of waste can be summarised as follows:

- Given their attitude of indiscriminate solid waste disposal, and discrimination with regard to who handles waste, there is a disconnect between them and their natural world.
- This disconnect is reflected through their waste disposal and management story, language story, human story, and real story.

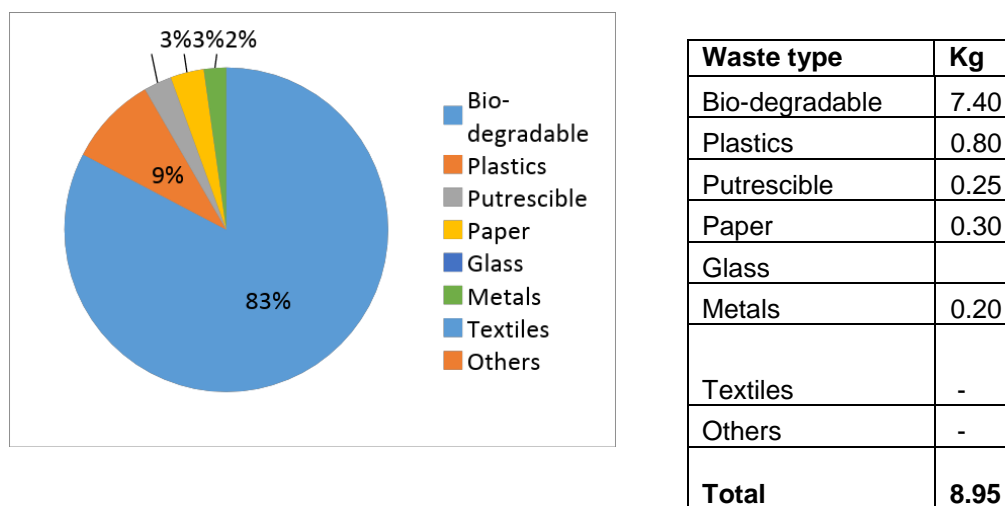


Figure 6.10: Waste composition of middle-income family, non-indigene respondent

Thus, for well-being the social context never stands alone, the physical context is never alone, the bodily and the language contexts are never alone; all the dimensions of the life-world contexts are inter-twined and mutually influential. The focus on the waste story is, therefore, not isolated but inter-connected with the richly textured places and storied landscapes within the residents' living environmental conditions.

6.6 ENHANCED WASTE MANAGEMENT AND IMPACT ON PA

With the host of drivers identified, the primary interest at this stage is how they can be modified to enhance waste management so as to correlate with the strong PA. The responses of key informants, focus group discussants, and the interviews with heads of households are presented on Table 6.3, and were summarised as follows:

- Stakeholders' meeting
- Government/municipal role

6.6.1 Stakeholders meeting

Arising from the sordid and uncomplimentary state of the settlement, (coupled with the fact that the residents are the people affected) it behoves them to have a regular stakeholders' meeting to chart a better way forward (see Table 6.3). Data and findings clearly indicate that there have been community-based meetings of various kinds one of which is the regular meeting convened by the *Okaidunmwumwun*), where issues affecting the community can be addressed, and adopt possible solutions. Through this avenue they could address the extreme lack of hygiene and sanitation as well as tap into the benefits of a clean and conducive environment, while also converting waste to other uses, thus creating wealth from their waste.

Responses to this possibility were unanimous in suggesting that the stakeholders should come together and tackle the challenge more proactively. This initiative should involve religious leaders, pastors and priests, especially for raising awareness among residents of the benefits they could derive from a healthy and clean environment. Given that the residents are strongly religious it is not out of place that waste management would have pride of place, especially by attaching waste to ritual practices and by so doing elevate waste and its handling with more potent rituals as practiced by the community. When this elevation is combined with the benefits derivable from waste, it will solve the endemic indiscriminate waste disposal practices.

About creating wealth from waste, opportunities abound in the community. Some residents can make a living from the 3Rs (reduce, reuse and recycle) and use it to support the family income (as not less than 2% of the urban population live from scavenging on an informal basis). At the moment, there are some scavenging activities, primarily from cart-pushers and others who front for intermediaries that buy bottles for breweries, and pharmaceutical industries in Benin City.

Table 6.3: Summary of interview analysis and research data on drivers modified for enhanced PA

Contradictory/conforming sub-questions	Ethnographic observation guide/questions schedule	Focus-Group/Workshop Guide Schedule	Key Informant/actor	Household interview
3 How could the underlying drivers be modified towards enhanced waste-management/disposal practices and how could this impact on PA?	<ul style="list-style-type: none"> -Stakeholders to come together and brainstorm to find lasting solutions -Introduction of the 'old' kinship nexus - 	<ul style="list-style-type: none"> -Bring stakeholders together from the different walks of life to brainstorm and take the resolutions back to their constituencies - 	<ul style="list-style-type: none"> -The stakeholders, religious leaders, pastors, priest to come together on the need to let the residents be aware of what benefits could be derived from a clean and healthy environment 	<ul style="list-style-type: none"> -Mass education, dissemination of information from leaders to the grassroots

6.6.2 Government/Municipal role

Another avenue that can generate funds and energy is the waste from the open cattle ranch and market. The cow dung and the droppings from sheep and goats if adequately harnessed with appropriate digesters and generators are ready sources of energy; electricity and gas. The electricity and gas generated from this site can light up the houses in the area and supply gas for domestic cooking and use.

Now it is being wasted, and constitutes a nuisance to the environment. The issue of cow dung has been a sore point of conflict between the residents and cattle herders. With the knowledge of the use of waste from the open cattle ranch and market, the conflict that once existed could give way to collaboration between the herders, and the residents of the community.

Given the advantages derivable from the proposed venture, there would be every possibility of a symbiotic relationship between the erstwhile hostile neighbours that could metamorphose into a joint business venture. For such a venture to materialise, the government and especially the municipality would have to create the enabling environment through capacity building, the provision of initial investment, and availing land, among others.

Another source for converting waste that have been untapped for years on end, and which can be a road to wealth, is the reprocessing/recycling of the ubiquitous plastics of various types, from LDPE to PET. Earlier, the researcher made allusions to the possibility for a community-driven waste management initiative to convert LDPE sheets and bags through a simple technology of melting and mixing it with sand to produce LDPE-bonded sand blocks, and pavers.

Arising from the hyper-religious attitude of the residents, the leaders (both religious and political) could elevate waste management through the ritualisation of its process with some agentic connotations. Such actions can be performed in their various religious denominations, but what would be most important is the willingness to agree to do it. After all, religion performs two critical functions, which are a system of self-maintenance, and a system as of self-transcendence (Saroglou. 2011; Alcorta and

Sosis, 2005). Moreover, the idea of managing waste belongs to the first, especially when bearing in mind the community's awareness of the say that cleanliness is next to godliness.

Another critical factor that would be modified to enhance waste management is to strengthen the prevailing social structures. For example, the age-group networks can be strengthened to undertake the monitoring of residents to comply with the decisions reached at the stakeholders' meeting. Each would hold the responsible *Okaidunmwumwun* to account over his domain, possibly guided by Ostrom's (2008) principle of self-sustaining communities with rules, regulations and conventions guiding its functioning on a day-to-day basis.

Based on knowledge and insights gained from neuroscience, and the perceptual processes, Table 6.4 provides the lenses for mental representation to the individual who through awareness could be motivated to modify behaviour/practices to suit the opportunities at her/his disposal. Given the inclusion of somatic modes of attention from cultural phenomenology, where aesthetic sensibilities and attention to attractiveness are some of the fundamental concepts, it follows that if thought is attached to their rich cultural heritage, the possibility of behaviour modification towards a solution would be almost certain.

With a comprehensive and holistic approach, primarily guided by neurophenomenological principles, the study assumes a positive impact on PEB in a manner that aligns with the prevailing strong PA. For example, from available data, the residents do not see themselves as attached to the environment but rather to themselves, hence the intense engagement in social functions such as burials, and marriages among other activities. However, with the modification of the drivers that included people-environment relationship where feelings, emotions (somatic modes of attention) and environment would be one- embodiment. Therefore, the relationship which is assumed to involve two entities (people/environment) is lived existentially as one (people-environment intertwinement). With this concept in mind, their already-lived-togetherness can be transformed into a virtuous cycle, which enhances PEB as well.

Table 6.4: Summary of enhanced waste management/disposal with theoretical and interpretative perspective

Research question	sub-	Data resource parameters criteria	Ethnographic, phenomenological	Neuro-phenomenological	Neuro-science/region of central nervous system
How could the underlying drivers be modified towards enhanced waste management/disposal practices and how could this impact on PA?		-Stakeholders meeting Government/municipality role	Analytical categories such as perception and sensation to interpret embodied experiences is imprecise	-do-	OFC for thinking, planning, organising, problem-solving, execution, emotion, behaviour control, personality

6.7. SUMMARY OF FINDINGS

The study data revealed that the key drivers of the contradictory conditions are mainly the varied perspectives of the heterogeneous residents living together, the absence of reliable waste management services, and the *laissez-faire* attitude of the municipality.

These factors have contributed in no small way to the environmental degradation of the settlement. The picture of degradation has brought under the spotlight the negative attitudes of residents towards the environment as the unattractive posture, and degraded environment facilitates further abuse by residents. Residents' attitude towards their habitat thus tends towards despondency, detachment and alienation. This demonstrates a strong case of their living in dissonance with their disharmony phase for individual residents, and the community as a whole. In addition, the environment is desecrated through illegal dumping and littering as the quality of waste management service (both by the municipality and private waste managers) by any standard is poor.

The initial expectations of the study was that a settlement that is hyper-religious would strive to live by what they preach. In the case of Uroora community, the data reveal otherwise, which leads to the insight that there can be gaps between belief systems and practice. Furthermore, from Lakoff and Johnson (1980) "frames and schema", it shows that there is a considerable disconnect between personal culture in the form belief systems, tactile, visual and olfactory representations (schema) and group culture as informed by shared beliefs (frame) of the residents.

Further on the "waste to wealth" schema, the settlement possesses two important resources through which the fortunes of the community could be brighter. These are the cow dung and plastics that have been wasting away, untapped. Given the right technology and enabling environment, the settlement could become a source of attraction and could blaze a trail which could inspire other communities towards tackling their respective waste problems in a resource/opportunity-based approach.

CHAPTER SEVEN

CONSOLIDATION OF FINDINGS CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION AND STRUCTURE

The study assumed that the co-existence of strong place-attachment with weak pro-environmental behaviour is rooted in misaligned meaning and values on how waste is understood. The co-existence was, in particular, felt in the association of waste with other social-negatives/biases and finds social expression in the form of conforming *and* contradictory PA in PEB activities. Conforming PA is when strong PA aligns with a strong PEB, and weak PA aligns with weak PEB. And contradictory actions provide that weak PA correlates with weak PEB, and strong PA correlates with weak PEB. An ethnographic and (neuro)phenomenological study (ethnographic based-observation, and the lived experiences and consciousness of residents) was considered as the appropriate overall approach for the study. This endeavour aimed to apply neuro-scientific insights for a better understanding of the apparent contradiction based on a developing country perspective, and thus facilitates the re-conceptualising of the relationship between PA, HHSWM, and PEB in general.

This chapter presents the consolidation of sub-findings from chapters 4-6, with the intent to derive the overall findings of the study through the resolution of the overall research question. The chapter begins with a recapitulation of the research question, and the research sub-questions, followed by the essence of the key findings of the study. The Chapter consolidates the sub-findings from the research sub-questions, followed by conclusions, and recommendations.

7.1.1 Research objectives

The research objectives guiding the study were as follows:

- Identify household solid waste-disposal practices, and the resultant 'waste condition' at different community scales based on various social-cultural

parameters such as income, household size, indigenous location, and language

- Ascertain awareness/perception of current waste practice, and relationship with 'waste condition'
- Discover place-attachment/community, and sense of belonging with related ritual practices as to prayers, marriage, burial, and progressive associations
- Determine the presence or absence of 'waste condition' awareness as part of the feeling/experience of place attachment

7.1.2 Research sub-questions

Arising from the objectives above, the study addressed the following sub-questions which were based on PA, PEB/waste and contradictory and conforming activities of PA and PEB as manifested through the handling of solid waste.

PA sub-questions

- The commonly shared rituals at family and community levels in the settlement
- The significance of these rituals in enhancing bonding and a sense of belonging in Urora
- The level of individual and collective awareness of the waste-condition, and how this knowledge influences the sense of belonging.

PEB/Waste sub-questions

- The indiscriminate waste disposal practices as key drivers of the waste condition of the settlement
- The different compositions of waste at generation, and the different disposal points used by households/families
- How the 'waste condition' affect public health, and infrastructural facilities in the settlement

Contradiction/conforming sub-questions

- The current pattern of PA versus waste-condition (contradiction - strong place attachment and weak/poor waste management/disposal practices, or

conforming - strong place attachment, and strong waste management disposal practices)

- The underlying drivers which sustain/drive this 'contradictory or 'conforming' interaction in PA *versus* waste-condition
- How the underlying drivers can be modified towards enhanced waste management/disposal practices, and how this could impact on PA

The consolidation of the main findings of this study is taken under each research sub-question, with the main activity as the umbrella chapter. For example, the three research sub-questions under PA have their findings under chapter four, likewise chapters five and six cover sub-findings on PEB/waste condition, and contradiction/conforming sub-findings respectively. While these activities are interwoven, the study has taken into consideration the different concerns in each of the research tools to ensure more all-embracing conclusions concerning PA, PEB/waste, and contradictory/conforming activities.

This chapter is therefore structured into four parts as follows:

- Findings, discussions and conclusions on the commonly shared rituals at family and community levels, rituals in enhancing bonding and sense of belonging, levels of individual and collective awareness of the waste condition, and influence on the sense of belonging
- Findings, discussions and conclusions on the indiscriminate waste disposal practices, the composition of waste at generation and disposal points, the effect of waste on public health and infrastructural facilities
- Consolidation of findings on PA, PEB/waste and contradiction/conforming concerns about the (neuro)phenomenological models as mediated by insights from neuroscience in relation to the research process.
- Relationship and support between the research question, conceptual framework, and the methodology. Contributions to knowledge, areas for further research, and conclusions

7.2 INDISCRIMINATE WASTE DISPOSAL PRACTICES, THE COMPOSITION OF WASTE AND EFFECT ON PUBLIC AND INFRASTRUCTURAL FACILITIES

This section is structured in three parts, in consonance with the research sub-questions as the components receive my attention one after the other as they appear in Chapter 4. The key sub-sections are:

- PA constituents for Urora settlement
- Significance of ritual in enhancing bonding and a sense of belonging
- Individual and collective awareness of the waste condition and its influence on belonging

7.2.1 PA constituents for Urora settlement

The PA constituents for Urora revolved around the following key elements commonly shared: rituals at family and community levels, rituals in enhancing bonding and sense of belonging, individual and collective awareness of the waste condition, and influence on sense of belonging. The lived experiences and consciousness of the residents from the (neuro)phenomenological and neuro-scientific perspectives formed the basis of the analysis, and the summary of findings are presented in Table 7.1.

From Table 7.1, with regard to research sub-question 1 (a), the study applied the following parameters to articulate the range of experiences as guided by ethnographic and phenomenological data, and the resultant findings. At the family level, concerning commonly shared rituals, the parameters were prayers, washing, cleaning, bathing and sweeping. Moreover, the findings on these parameters were for prayers done by the residents on a daily basis as goal-directed behaviour that engaged neural networks, and the somatic modes of attention of residents.

Furthermore, the residents' habitual activities such as prayers implicate the neural networks of the central nervous system. This helps us understand that their living experiences have an underlying physiological structure of neural interactions which combine brain, body-mind, and environment.

Table 7.1: PA activities in Urora settlement

PA research sub-questions	Parameters/findings	Implications from (neuro)phenomenological and insights from neuroscience
1. The commonly shared rituals at family and community levels in the settlement.	<ul style="list-style-type: none"> ● Family Prayers, washing, cleaning, bathing and sweeping ● Community Daily, weekly masses and services/Mosque, Church activities. <p>-Festivals; <i>Ikpolesi</i>, <i>Igue</i>, Easter, Christmas, Eid-el-Malud, Eid-el-Fitr</p> <p>-ATR 5-daily activities/prayers,</p> <p>-Marriages, birth, death/burial, naming ceremony</p>	<p>-Life-world, inter-subjectivity, being-for-itself, but a being-for-the-other.</p> <p>-Goal-directed actions</p> <p>-Relationship between cognition, experience and consciousness, embodiment and culture, somatic modes of attention.</p> <p>-Mirror neurons, neural-networks, olfactory monitors (details from Table 4.8)</p>
2. The significance of these rituals in enhancing bonding and sense of belonging in Urora and Benin City in general	<ul style="list-style-type: none"> ● Bonding- emotional link to community ● Bonding- attachment and commitment ● Bonding- involvement ● Belonging-belief in community rules and connectedness ● Use religion to maintain bonds, solidarity, oneness, and love for one another. ● Use existing structures like the Oba, chief priest, <i>Odionwere</i>, <i>Okaidunmwunwun</i> street executives to bring about peace, law and order 	<p>-one-in-the-other, indeterminacy, duality between subject object.</p> <p>-neural-networks -happiness evoked in media OFC (see Appendix 8)</p>
3. The level of individual and collective awareness of waste-condition and how this knowledge influence the sense of belonging	<ul style="list-style-type: none"> ● Individual awareness of the waste condition ● Collective awareness of the waste condition ● Waste condition and belonging ● Group of some individuals could be seen although at irregular intervals doing community work like clearing, sweeping and open burning 	<p>-visual perception, shape, colour, occipito-parietal “where” pathway, contain shape information, occipito-temporal “what” location information</p>

The study reveals that residents regularly participate in cleaning and bathing (another goal-directed behaviour), where matched relationship between observed action and actions performed are inconsonant with each other. Regarding every day sweeping of the compound as one of the parameters, the study finds that not less than 60% of residents engaged in regular compound sweeping (see Figure 4.3). For this activity, because it generates dust, and also the stench from accumulated refuse registers on the olfactory monitor neurons of the brain connecting the nose, it serves to warn residents of this uncomplimentary, and negative health implication of the waste. In addition, as a result of the decomposition of accumulated refuse, the environment is in a perpetual stink.

Concerning the commonly shared (communal) rituals at the community level, the parameters were daily, ATR daily activities/prayers, weekly masses, and services/mosque and church activities. Others include festivals; *Ikpoleki*, *Igue*, Easter, Christmas, Eid-el-Malud, Eid-el-Fitr, marriages, birth, death/burial, and naming ceremonies. Just like the findings for the commonly shared rituals in the family, the study reveals that residents are quite religious as they attend spiritual-ritual programmes, and activities regularly. An interesting aspect of this finding is the multiplicity of churches and prayer houses as seen in Table 4.4. Other commonly shared rituals which are frequently engaged in by the residents (and especially the ATR adherents) on communal basis are the *Ikpoleki* and *Igue* festivals.

The activities regarding performance tend to follow a regular pattern of monotony and stereotype. The prayers at the communal platform are goal-directed and appear to solidify the sense of bonding, identity, belonging, and involvement in community affairs as members take delight in performing these functions. As a goal-directed activity, prayers at the community level is laced with latent meanings and unintended effects beyond human intentionality as they are expected to accomplish things beyond the residents' expectations. Participation in marriages and burial ceremonies cut across religion, gender and age considerations as the residents experience such occasions as an opportunity to sustain, and enhance their social bond. Figures 4.4 and 4.5 present examples of such practices.

7.2.2 Significance of rituals in enhancing bonding and sense of belonging

With regard to research sub-question two under PA (concerning the significance of the studied rituals in enhancing bonding, and a sense of belonging in the settlement), four parameters were applied in articulating the range of experiences, based on ethnographic and phenomenological study. The parameters were bonding- emotional link to the community, bonding- attachment and commitment, bonding- involvement, and belonging-belief in community rules, and connectedness.

On bonding-based -emotional link to the community, the study revealed that it is the self-transcendent experiences that bond the people, primarily based on the affective dimension of religion. The ATR adherents believe that the *Ikpoleki* festival has the power as mediated by rituals as they worship the *Okhualhe* deity to invest and transmit stronger bonds for enhanced cooperation, solidarity, with one-ness as the bi-product of this activity. Without engaging in the ritual of *Ikpoleki*, social life will degenerate into chaos. The idea of bonds, solidarity, and one-ness is strengthened further through the commemoration of the *Igue* festival (as instituted by Oba Ewuare I), which marks the end of the Edo year, and entails the exchange of gifts to signify unity among the people. Other hallmarks of the festival include thanksgiving, sharing, caring, love, and devotion to a god-head.

On the parameters of attachment and commitment, the observation and secondary data revealed that two systems of power and authority are in existence in the community, and by extension the state and beyond. These are the traditional and the representative governments. The traditional structure has a hierarchy of the *Oba*, the *Odionwere*, the *Ohen* and the *Okaidunmwunmwun*. At the street and quarter level, the *Okaidunmwunmwun*, along with the other executives whose tenure lapse every three years, preside over matters of regular concern. These include control of flooding, improvement of the power/electricity situation, and more importantly facilitating for peace and tranquillity in the settlement (see Figures 4.8 and 4.9).

Bonding through the involvement of residents in community affairs, a common motivation in this regard, is what the individuals/community stands to gain. Problems

like flooding tend to bring out the cooperative tendencies, and solidarity among residents as failure to undertake pre-emptive actions could spell doom to their houses or business concerns. On one such occasion during the ethnographic study, the researcher saw some residents attending to debris that had been transported by rainstorms, and wind. However, the study revealed that some non-indigene residents (possibly because of religious differences, or by nature, their occupation being nomadic) opted not to associate with the communal developmental efforts of the area.

The fourth parameter on bonding and emotional link to the community is the belief in community rules and connectedness. The study revealed that when community rules are secular in outlook, it tends to motivate residents to participate in group activities. Earlier, the study made allusions to the landlords and landladies meetings where issues of mutual interest are discussed, and resolved. These include peace and tranquillity among residents. In this context, therefore, this study revealed that the *Okaidumwunmwun*, given his reach and influence, could mandate the quarter executives to adjudicate on matters of genuine concern. On this score, the researcher captured, and witnessed a settlement between disputant families (see Figures 4.8 and 4.9).

On the issue of connectedness, some key informants informed the study of the generosity of a general overseer of the Pentecostal Church (now deceased) who hailed from the settlement. The overseer used to donate a cow, and other sundry items when the community was to celebrate the *Ikpoleki* festival. Despite the differences in faith, the indigene general overseer supported the traditional worship of his native place of abode. It became evident that to a degree, cooperation, submissiveness, and identity were closely observed in the settlement.

Given that consciousness and perception emerge from the dynamic interactions of the brain, body and environment, the observed resident-practices impact on the following experiences: happiness evoked in the neural networks of the central nervous system (see Appendix 8), when residents have cause to celebrate, as well as during expectations, (when approaching an unauthorised stinking waste dump) that triggers the neural networks of the brain.

7.2.3 Individual and collective awareness of the waste condition and its influence on belonging

Given the third research sub-question under PA concerning individual and collective awareness of the waste-condition, and its influence on sense of belonging, the data revealed an accurate description, and residents' experiences along the following parameters. On personal awareness, the study revealed that mainly in respect of the old houses solid waste, in whatever form, is consigned to the waste dump behind the house. For the newer houses, the solid waste is deposited at the front of the house. The harmful effects of indiscriminate waste disposal, especially the unpleasant odours, informed the idea of locating the dumpsite some distance away from the house given that such dumpsites create conducive conditions for disease-carrying vectors to thrive.

About the collective awareness of the waste condition, data from ethnographic observations, and focus group discussions revealed the efforts of the community to deal with waste in the event of it constituting a nuisance to the environment. Given that neuroscience is constituted of the dynamic interactions of the brain, body and environment, there are impacts on the following activities. The visual and neural networks of the residents are impacted by the events of waste deposits, or the quantity that has spent days rotting as the stench that emanates from it provokes specific cortices of the brain. Under the influence and leadership of the *Okaidunmwunwun*, polluters are reprimanded, with the proviso that if the incident persists the people around the vicinity of pollution will be brought to book (see Appendix 6a).

In spite of the safeguards, such as looking after the interest of residents from the perspective of emotional link, and attachment to the community, and that the perpetrators of pollution will be booked, residents seem to have a limited sense of pride with their place. It is limited possibly because other factors may have overwhelmed the residents, and for which they have no sense of agency for control other than to offer palliative measures. These factors were highlighted in the PEB/waste conditions, and the contradictory and conforming practices of the residents.

7.3. PEB/WASTE COMPONENTS FOR URORA SETTLEMENT

The study harnessed accurate description and subjective experiences of residents from the ethnographic observation, and (neuro)phenomenological insights from neuroscientific perspectives to constitute the basis for the analysis. The PEB/waste components for the settlement discussed in Chapter 5 was mainly concerned with the following:

- Indiscriminate waste disposal practices in the settlement
- Composition of waste at generation, and disposal points by families and households
- How waste condition affects public health, and infrastructural facilities

7.3.1 Indiscriminate waste disposal practices

From Table 7.2, the parameters that facilitated the articulation of the range of experiences in the indiscriminate waste disposal practices in the settlement were open-air burning, dumping on the street and uncompleted places, compound waste dump, shallow burial, and public open spaces. This sub-section presents the summary of sub-findings along these parameters. The summary of sub-findings is presented in Table 7.2.

One of the commonly practiced methods of solid waste disposal in the settlement is open-air burning. The residents embark on it on a continuous basis with minimal concern for the negative impacts on their health, and the environment in general. Figures 5.1a and 5.1b show sample images of the practice within the compound, or in secluded areas like the bushes or the moat, with resultant air pollution, and hardly any consideration given to GHG emissions or global warming. The actions perpetrated by the polluters negate the inter-subjective principle of being-for-the-other, thus reinforcing the contrary: a being-for-itself. In this context, only the second aspect is satisfied; as the polluters seem only to think of their own/individual or household interests.

Table 7.2: PEB/waste activities in Urora settlement

PEB/waste research sub-questions	Parameters/Findings	Implications from (neuro)phenomenological and insights from neuroscience
1.The indiscriminate waste disposal practices evident in the settlement	<ul style="list-style-type: none"> • Shallow burial • Open burning • Indiscriminate dumping at road junctions, uncompleted structures and vacant lands, schools, markets and moats • Push-cart scavengers • Compound waste dump <i>otiku</i> 	-Mirror neurons, OFC, Somatic modes of attention (see details in Table 5.5a)
2. The different compositions of waste at generation and different disposal points by households/families	<p>Generation</p> <ul style="list-style-type: none"> • Bio-degradable (putrescible) • Plastics • Paper, • Textiles, • Glass, • Metals, Aluminium <p>Disposal</p> <ul style="list-style-type: none"> • Non-degradable • Plastics • Textiles • E-waste, • Metals • Aluminium, 	<p>-Visual perception, shape, colour</p> <p>-Object-directed behaviour</p> <p>-Mirror neurons</p> <p>-Olfactory monitors (see details in Table 5.5b)</p>
3. How the “waste condition” affect public health and infrastructural facilities in the settlement.	<ul style="list-style-type: none"> • Presence of accumulation of uncollected waste • Flooding as a result of stormwater canals (moat) blocked by waste • Open waste dumps (<i>otiku</i>) behind the house 	<p>-Somatic modes of attention, inter-bodily resonance, Olfactory monitors, visual perception, shape, colour.</p> <p>- ‘What” pathway about location</p> <p>- “where” pathway regarding shape information.</p> <p>Further details in Table 5.12b</p>

The compound waste dump, the *otiku* (which is commonly a dugout portion of earth used for sand-filling during the building of the house to damp proof course), receives all manner of debris. In older houses, the pit is located in the backyard of the compound. With the passage of time, *otiku* has metamorphosed into a back garden as the solid waste accumulates, and biodegrades.

The study revealed that shallow burial has been a method of waste disposal practised by some residents for a long time. Due to a lack of space for continuous solid waste burial, the householders appear to have temporarily scaled down on this dangerous practice. However, the practice is still in use as much of the settlement consists of arable soil. Phenomenologically, this practice can be described as being-for-itself without concern for being-for-the-other in an inter-subjective sense, of the residents, and visitors alike.

Public open spaces which include the moat, school compounds, and markets are some of the unauthorised places that receive more of the solid waste than the other sites/practices previously identified. These dumpsites stink badly and give the settlement the negative image of a dirty environment. The moat was initially used for defence purposes, but subsequently converted illegally to dump sites as the population of the settlement escalated. To reduce the visible volume of accumulated waste, it is set ablaze, which then emits smoke which engulfs the settlement. At some sections, the moat also serves as a canal to convey stormwater within, and around the settlement. The mixture of all manner of solid waste, water, warm or cold weather, presents an atmosphere conducive to disease-carrying vectors such as mosquitoes, flies, and rodents. Given the unconducive atmosphere, it involves the OFC, olfactory monitors, and somatosensory organs of the skin.

The itinerant cart-pusher/scavenger constitutes a common intermediary through which the moat receives refuse from the various households. For a pittance of a token-reward or payment the solid waste is transported to the illegal dumpsites and with time the site overflows with different kinds of refuse. Given the fee charged by the appointed private waste managers on a monthly basis, compared to the pittance for the push-cart vendors, residents tend to patronise the push-cart vendors more. Furthermore,

the vendors access areas and roads that are seasonal, thereby making their services flexible, and attractive to householders (Figure 4.13 depicts a typical example).

7.3.2 Composition of waste at generation and disposal points

Arising from the second sub-question (composition of waste at generation and disposal points), the parameters that facilitated the articulation of the range of experiences are bio-degradable, putrescible, metals, glass, paper, textiles, plastics, and others. At the disposal end, they included the foregoing categories with e-waste and market refuse as the additional factors.

Regarding the composition of solid waste items, five householders (two low-income earners and three middle-income earners) were shadowed for five days using the criteria as outlined in 3.4.5, Appendices 6a & b, and the findings from the analysis are presented in Tables 5.7-5.11. Irrespective of the income levels, the bio-degradable category (which consists of the remains of the staple food; *garri*, yam tubers and skins, rice, plantain and skins) constituted the dominant category by weight, followed by the putrescible waste and plastics. Regarding visual perception, the mixed bag presents the different colours and contents of the categories of waste as bio-degradable mixes with non-degradable waste. In this same context, while some of the waste looks benign, others are repulsive.

7.3.3 Effects of the ‘waste condition’ on public health and infrastructural facilities

On the third sub-question under PEB/waste condition (considers the effect of “waste condition” on public health and infrastructural facilities), the parameters used were the following - accessibility to reliable waste collection service, presence of open-air burning, presence of *otiku*, flooding as a result of the blockage of canals by waste.

The study revealed that a mere 25% of the residents are able to access the waste collection service provided by the appointed private waste collectors. This leaves a balance of 75% of the population unattended. The outcome of this inadequacy presents itself in the uncollected waste that liberally dots the landscape, which in turn makes the environment stink, and unattractive. The unattractive condition presents a conducive environment for vector-conveying diseases like houseflies, rodents,

cockroaches, and mosquitoes to thrive, to the extent that cases of malaria in the settlement has ceased to be a surprise as it has become a regular household experience. In the same vein, diarrhoea and gastroenteritis also are prevalent.

The prevalence of solid waste, especially in open canals, has accentuated the flooding of the settlement by stormwater, both in terms of frequency as well as intensification, and duration. For a period of not less than seven months of the year, about 60-70% of the settlement is inaccessible because of submergence due to stormwater (see Figures 4.13, 5.9 and 5.10). In addition, the stormwater transports uncollected/accumulated refuse to less fortunate areas. Besides the perceptual factor, the stench over time, the habitat/environment also takes on the visual appearance of being depressed and forsaken. As a result, some residents have abandoned their houses because of the twin problems of flooding, and the crippling stench created by refuse. This leads to the residents experiencing deteriorating states of sickness, and disease, as alluded to earlier.

In a bid to reduce the escalation of accumulated refuse, the residents often resort to open-air burning without adequate knowledge of the hazardous consequences of toxic air-pollutants, GHGs and global warming. The burning of accumulated solid waste has, therefore, become a common practice in the settlement, such that anywhere you turn, the usual, and the immediately noticeable feature is garbage set ablaze (see Figures 5.1a and b, 5.6c and e and 5.7).

7.4 CONTRADICTION/CONFORMING DRIVERS AND MODIFICATION OF DRIVERS TOWARDS ENHANCED WASTE MANAGEMENT AND IMPACT ON PA

Under this section, the study summarises the sub-findings of contradictory/conforming drivers of the dis-connect between PA and PEB, and how these drivers could be modified to enhance waste management, and its impact on PA. The study complemented data collected from the dialogues with the residents with ethnographic-observation data, coupled with (neuro)phenomenological descriptions as well as neuro-scientific observation, as summarised in Table 7.3.

Table 7.3: Contradictory/conforming activities in Urora settlement

Contradictory/conforming research sub-questions	Parameters/Findings	Implications from (neuro)phenomenological and insights from neuroscience
<p>1 Contradictory-strong PA and weak HHSWM/disposal</p> <p>conforming-strong PA and strong HHSWM/disposal,</p>	<ul style="list-style-type: none"> • Heterogeneous/multilingual settlement as resident-visitors out-numbered resident-indigenes • Climatic conditions • Illiteracy with little knowledge of hygiene • Perception and derogative language associated with waste workers • Absence of waste management facilities • Laissez-faire attitude of Government 	<p>-Somatic modes of attention</p> <p>-Inter-bodily resonance</p> <p>-Mirror neurons</p> <p>(Details on Table 6.1b)</p>
<p>2. Drivers which sustain the contradictory and conforming interactions</p>	<ul style="list-style-type: none"> • Lack of knowledge of the value of the waste generated. • Religious and traditional institutions • Cognitive dissonance, language and peer group influence • Economic downturn 	<p>-Attention, visual perception</p> <p>-inter-bodily resonance</p> <p>(Details on Table 6.2b)</p>
<p>3. Modify drivers towards enhanced waste management practices and impact on PA.</p>	<ul style="list-style-type: none"> • The stakeholders, religious leaders, pastors, priest to come together on the need to let the residents be aware of what benefits that could be derived from a clean and healthy environment. • Government/municipal role 	<p>-Goal-directed behaviour</p> <p>-Somatic modes of attention</p> <p>(Details on Table 6.4)</p>

7.4.1 Contradictory/conforming drivers in PA and PEB discourse

The parameters considered in establishing the sub-findings to the last sub-question are the following; heterogeneous and multilingual settlement, climatic conditions, illiteracy, and limited knowledge of hygiene, absence of waste management facilities, and the *laissez-faire* attitude of the government. Table 7.3 presents the corresponding sub-findings of (neuro)phenomenological and neuro-scientific perspectives and implications.

Given the ongoing escalation of the rate of urbanisation and population explosion, Urora continues to transform into a diverse and multilingual settlement, with different ethnic groups who live their lives according to diverse cultural values, and cosmovisions. This has constantly undermined the traditional structures of the host community, as well as that of the in-migrants, based on the lines of age-group, gender, and kinship networks. Given this scenario, the indigenes of the receiving community (who are currently out-numbered by a ratio of 1:5) cannot cope with the present challenges of indiscriminate solid waste disposal. Based on the escalating trend of the waste condition, everyone is to him/herself and does what s/he feels like doing, such that the environment continues deteriorating. But once in a while, cooperation to pursue a common purpose can emerge, such as when the street executives deliberate on communal issues, and ask resident-members to pay levies. However, this kind of initiative is commonly viewed with suspicion as there have been reported cases of lack of accountability, and transparency. In addition, rarely do such initiatives entail responses towards long-term solutions for the waste challenge.

The second parameter is the living condition/attitude of residents. Given the population explosion, and over-urbanisation, there is hardly any vacant land for new residential development. As a result, some of the resident-indigenes have resorted to the covering and sand-filling the moat at different intervals, to sell off this land to newcomers. This lure of personal financial gain intensifies the blockage of the free flow of stormwater, thus escalating the intensity of the flooding of 60-70% of the settlement during the wet season. The matter is made worse through the activities of nomadic herders who rear and settle cattle and sheep in the open where they spread

their droppings. The handlers also sleep, and defecate in the open spaces. The unhygienic living conditions, coupled with air pollution, is made worse during the wet season as the stormwater washes these remains to less affluent settlements.

Given that the ongoing degradation of the environment intensifies the deterioration of behaviour since the community's behaviour is primarily action-oriented - what the cattle handlers have done without redress encourages other residents of the host community to behave in a similar manner. The ultimate outcome gives credit to The Broken Window Theory (Holden, 2008), and more importantly, the neuroscience insight of action-oriented perception - what we do depends on what we perceive, while at the same time, it also holds that what we perceive depends on what we do.

Given the wet and dry seasons cycles of climatic conditions, it appears that the residents prefer the latter because of the circumstance that during the wet season about 60-70% of the settlement is submerged, and inaccessible because of the absence of proper drainage. This inaccessibility gives yet more room for unscrupulous residents to launch their waste into the stormwater, which further degrades the environment, and thus intensifies the conducive environment for disease-carrying vectors to breed and multiply.

The study shows that the residents prefer public/communal dumpsites to the present arrangement of a government appointed waste manager moving from house-to-house. Further, there are no waste bins provided, and therefore the residents feel they have no option but to improve their own solutions, and thus justifying the state of degradation.

The government's attitude towards the waste management crisis in the settlement is that a mechanism for monitoring the waste managers is lacking, to ensure they are keeping to the level of services they are contracted for. In addition, the government lacks the capacity to enforce the waste management service as environmental health officers hardly ever visit the neighbourhoods or bring offenders to book. The resultant scenario encourages the disconnect between PA and PEB in favour of promoting indiscriminate solid waste disposal behaviour, and practices.

7.4.2 Drivers which sustain the contradictory or conforming of interaction in PA versus waste condition

Sub-findings on the lived experience and consciousness of Urora residents of the critical drivers which sustain the contradictory or conforming scenario, revealed the following main parameters:

- Inadequate/inappropriate understanding of the value of the waste generated
- Religious and traditional institutions
- Cognitive dissonance, primarily underpinned by language and peer group influence
- Economic downturn within a context of escalating pressure due to rapid urbanisation

Given that the variety of the solid waste generated in the settlement (from the droppings of cattle to the diverse household waste) could be converted to wealth provided they apply the right orientation, and technology, it is surprising that no systematic pursuit of the related vast potential for renewable energy has become established. In particular, the related opportunity has gone unattended, while the waste is allowed to rot away. At present, the aspect of waste put to good and profitable use is demonstrated by the use of the peels, and skins of plantain, and yam tubers. Occasionally, used bottles are re-washed and sold to intermediaries for onward delivery to the factories, especially for the brewery industry. The cart-pushers, scavengers, and a few residents who know the value of the re-use of bottles and some canned materials, possibly do not mind the lack of knowledge among most of the residents.

Common among Urora residents are the rich traditional heritage/values and religious activities which systematically discourage filth in any form or guise, let alone perpetually dwelling in it. From available data and sub-findings, the belief systems are more predisposed to the favourite saying that 'cleanliness is next to godliness'. The fact that traditional and religious sermons and injunctions do not encourage uncleanness, can be extended to indiscriminate waste disposal since the responses from pastors, and traditional priests interviewed in this study cohered in this expectation. In spite of this strong coherence, it is common to find refuse in nearly

every open space in the settlement, except in the traditional places of worship, be it ATR, Christian, Muslim or individual houses. However, immediately one steps out of these confines, it is a different reality altogether.

These sub-findings guide the study to the sub-question on why the residents continue to live in an environment that makes a mockery of their belief patterns. The related sub-findings reveal that residents suddenly have become overwhelmed by current circumstances/factors over which they experience a limited sense of control. In particular, factors such as the weather conditions, and the inability of the local and state governments to provide adequate waste management services (along with the polluting practices of residents) all coalesce in intensifying the sense of being overwhelmed.

Sensitised by an existential view that humans live not just in actualities but in their possibilities as well, the study finds that residents have resorted to neurophenomenological adjustments to these challenges processed in the brain, as well as through their somatic modes of inaction or inappropriate behaviour (Csordas, 1993). The immediate effect is a change in language, as it is medium through which the human communicates and expresses him/herself. The sub-findings reveal the mother-tongue expression which does not reflect the actual meaning – has given way due to the pressure of everyday-living. This action engaged in by the individual as peer pressure, influences some of the residents, and in contra-distinction to his/her belief system - cognitive dissonance (details in 6.3.2).

Surprisingly, the study further finds that the economic downturn acts as a check against the excesses of some of the residents who are beginning to look inwards as they eschew wastage. With the use of OFC, human ingenuity is at work, trying to rise from the ashes. When the economy was booming ton of waste were generated; then to make a sacrifice to a god some residents would use a cow, this was later reduced to a goat, and now a chicken.

7.4.3 Modifying drivers towards enhanced waste management practices and impact on PA

As presented in Table 7.3, the parameters that guided the articulation of the experiences in the modification of drivers towards enhancing responsive waste management practices and positively reinforcing PA, were the following:-

- Stakeholders' meeting
- Government/municipal role

The study revealed that religious leaders such as priests, pastors, opinion leaders, community leaders, and all the stakeholders in the community should collaborate towards the common purpose of reversing the indiscriminate waste disposal, and the weakening PA in the settlement. As they meet on a regular basis, it becomes possible to harness the advantages of generating wealth from waste, as analysed in Section 6.4.1 of the study. In particular, addressing the problem of flooding which continues to ravage the community is a precondition for achieving success in aligning the PA and PEB/waste behaviour, and practices.

Whereas the community should seek to partner with the government in solving the problem of flooding, the state government, and especially the municipal authority, should collaboratively take the lead in the creation of an enabling environment for comprehensively harnessing the waste opportunities that abound in the settlement. One of the solutions could entail the introduction of appropriate bio-digesters to convert waste into renewable energy, as the community has the potential, and an abundance of appropriate waste.

7.5 RELATIONSHIP BETWEEN THE RESEARCH QUESTION, CONCEPTUAL FRAMEWORK AND THE METHODOLOGY, CONTRIBUTIONS TO KNOWLEDGE, LIMITATIONS, AREAS FOR FURTHER RESEARCH AND CONCLUSIONS

. This section addresses the following key themes of the study:

- How the conceptual framework supported the research question
- How the methodology facilitates the resolution of the research question
- How the overall study makes an original contribution to knowledge
- Challenges and limitations of the study

- Conclusions
- Recommendations for further research

7.5.1 How the conceptual framework supported the resolution on the research question

The main objective of the study has been the understanding of the underlying drivers of the apparent contradiction of a strong PA, and weak HHWM/disposal, which runs contrary to the correlation that strong PA has with strong PEB, as is argued in most environmental behaviour studies based in developed countries. The starting point was to understand PA as substantiated in studies such as Scannell and Gifford's (2010a). The key inadequacy of such studies is its dualistic approach which is characterised by a separation of human agents from their environment. This inadequacy guided this study to the theory of existential phenomenology that accommodate, and integrate the human with the environment as conjoined, enmeshed, and inseparable.

From this perspective, the term human/environment could conceptually be seen as two concepts but existentially it is lived as one human-environment embodiment. Thus the foundational text of the study was anchored in the principles developed by Edmund Husserl, Maurice Merleau-Ponty, Francisco Varela, and David Seamon, among others. Given their emphasis on the lived experiences, and consciousness of the experiencing agent, these phenomenologists guided the journey to the detailed and appropriate description, analysis, and interpretation of PA, PEB/waste and contradiction/conforming behaviours, and practices within the case study settlement of Urora in Benin City.

Merleau-Ponty (1962) argues that perception is key to understanding human-environment interaction. Drawing on this perspective, Csordas (1993) came up with somatic modes of attention where he explored the various ways in which embodiment serves the existential ground of culture, and then was able to draw a distinction between body, and embodiment, among other concepts. This distinction is systematically appraised in Chapter 2. In humans, the idea of perception is processed by the brain. The critical significance of the human brain and nervous system guided the study to extend the theoretical field of neurophenomenology as inspired by insights

from neuroscience. The study, therefore, adopted a responsive conceptual framework to underpin the ethnographic-based observation, and fieldwork in order to better understand the ways of life of the residents, the culture, rituals, burial, marriages, festivals, family, communal practices, and behaviour. Chapter 4 applied the methodology to substantiate on residents' meaning-making practices for reinforcing their identity, bonding, belongingness, and worship. This contributed to a consolidation of PA from the neurophenomenological perspective.

A key frame of reference is the growing insights from neuroscience which has changed the way in which we understand human agency, and related behaviour as it has brought together in one context the relationship, and the dynamic interactions of body, brain, and the environment (natural as well as socio-cultural context). The study addressed the key theoretical concepts' relevance to this study sufficiently in Chapter 2. Given this approach, the study uses some insights from neuroscience, such as attention, perception, emotion, somatosensory, and language to substantiate on PA and PEB/waste management issues in Chapters 4-6. In doing this, a new layer of insight and understanding is introduced in two key fields of PA, PEB, especially in relation to waste management in developing country cities.

Therefore, the study shows the demonstration of contradiction in strong PA and weak PEB, which if not addressed with time, leads to further deterioration of PEB that will negatively impact on PA. Eventually, the present strong PA in the course of time will weaken because of the prevailing failure/apathy to exercise choice and agency by the residents towards a stronger PEB. Thus, the idea of embodiment will become mirage rather than a reality.

7.5.2 How did the methodology facilitate resolution of the research question?

The study incorporated data collected through four tools/approaches. First point data collection using a hand-held GPS Garmin Map 62, 2013 version to pinpoint places of interest within the settlement boundaries to *oguaedion* (elders' sanctuary), and waste disposal points, in addition to roads, and other public places (see Appendix 3). Secondly, a purposeful sampling technique was used together with the snowballing approach for a general questionnaire survey of the residents who resided at least ten years in the settlement, as guided by the measure of PA as suggested in Kyle, and

Chick (2007)(Appendix 2). Thirdly, ethnographic methods as guided by Agrosino (2007), as the shared patterns of values, beliefs and language of a culture-sharing group was applied to guide the observer-participant status of the researcher. Lastly, the phenomenological interviews were guided by insights from Moustakas (1994), and second-person interview methodologies from Petitmengin (2006) and Olivaries *et al.*, (2015) as presented in Figures 3.4 and 3.5, with origins from the seminal works on phenomenology by Husserl, Merleau-Ponty, and Varela (who specifically established, and consolidated the extended field of neuro-phenomenology).

The engagement of the four methodological approaches proved useful towards facilitating detailed data to assist the study on the relationships between PA, and PEB/waste practices, and behaviour. Given the research tools as presented in Figure 3.6, the stages of the ethnographic-based observation, key informants interview, focus group discussion, and the phenomenological guided interviews of five HHHs all proved relevant to the research question. The relationship of these data tools proved appropriate to the descriptive style of the dialogue I had with five HHHs, the focus group discussions, and attendance of community events that allowed for the gradual build-up of rapport and trust, which enhanced the willingness of residents to share their experiences and perceptions in a more integrated manner.

At another occasion, having sought an audience with the traditional priest who is the traditional political head, it was relatively easy to ask more sensitive questions on critical issues relevant to the study. One clear example was that when I saw thick smoke that ensued from the open-air burning of solid waste, one of the residents (who initially took exception to my presence and the taking of photographs), approved of my mission upon my mentioning of the priest's name. Through the same local priest of ATR, I was able to reach out to the resident-indigenes for a focus group discussion, the taking of pictures of sacred places, and determine the relevance of these locations to PA. This spirit of conviviality was also extended to me through permission to attend the street/quarter executive meetings where residents' representatives discuss matters of mutual interest, and concern.

By far the most critical tool to understand the phenomenon of PA and solid waste management/disposal is the use of rituals which is at the heart of the residents'

behaviour, and practices. The activities they perform, consciously or unconsciously, either during the feast, fast, festivals, ceremonies, and celebrations, have ritual, and agentic connotations as they are performed in a prescribed manner with or without spiritual meanings, implications or significance.

7.5.3 Contributions to knowledge

Neuroscience is concerned with the dynamic interactions of body, brain and the environment (Chapter 2). The key contribution of the study is the understanding which emerges when one applies the related principles of neuro-phenomenology in the PA, PEB/waste nexus. The available literature indicates the study is likely to be a pioneering work of importance as it combines the study concepts to understand better the relationships between humans, and the environment, especially the brain networks activated in the object-directed, and action-oriented activities of residents (as discussed in depth in Chapters 4-6). Chapter 4 findings affirm the prevalent strong PA from the perspective of social engagements, hand-in-hand with a weak PEB as solid waste is disposed indiscriminately. Through the principles of neuroscience, and especially neuro-phenomenology, the study reaches an understanding on the co-existence of strong PA, and weak PEB (Chapters 4 and 5), as well as the drivers, and reasons for the disconnect between them (Chapter 6).

Furthermore, the combination of the research methodologies of ethnographic-based observation, phenomenologically-guided interviews with the accompanying data tools (as substantiated in chapter 3) facilitated a detailed presentation of the enormity of the research problem and its critical drivers. The insights from Urora's case study on the contradictory PA versus PEB illustrates the phenomenon of the solid waste challenge inherent in a typical developing country which is rich in culture, and traditions (and hence with many opportunities to be wealthy) but poor in socio-economic terms, and standard of living indicators.

The study has, therefore, made specific contributions to the understanding of the crippling solid waste challenge through the use and adaptation of ethnographic field observation coupled with (neuro)phenomenology (as mediated by insights from neuroscience), and the PA and PEB/waste framework. The study has, therefore, managed to demonstrate the extent to which the concepts are intertwined, interwoven, and

embedded, such that one cannot meaningfully discuss one without references to the strands of PA, and PEB when analysing the state of solid waste in communities such as those in Urora settlement.

7.5.4 Challenges and limitations of the study

A cross-disciplinary study of this nature presents a myriad of specific challenges as the research focussed on a better understanding of the drivers that perpetuate the contradiction of the coexistence of the strong PA with relative weak PEB in relation to HHSW. First, the study cuts across the disciplines of sociology, anthropology, psychology, philosophy, (neuro)phenomenology with insights from neuroscience. Therefore, this study sourced for literature from the fields of environmental psychologists, sociologists, anthropologists and phenomenologists such as (Wolf, Krueger and Flora, 2014; Scannell and Gifford, 2010a; Bell, 1992; Fischer *et al.*, 2013; Altran, Axelrod and Davis, 2007; Merleau-Ponty, 1962; Valera, 1999 and Fuster, 2013).

Second, the study uses (neuro)phenomenology to bring and situate the perspectives of participants under one umbrella as the lived experiences and consciousness of resident-participants can be existentially lived as one (embodiment) but conceptually seen as two (human/environment). This position became relevant given the cultural approach of the study that made use of ritual which is capable of shaping the sentiments that inform the beliefs and can re-define social organisation in which human experience is re-created and re-newed. For the fact that the body mediate all transactions, frames and schemas were used to interrogate and conceptualise/integrate human and environment experience in the PA, PEB and HHSWM study.

Third, using a combination of ethnographic and phenomenological approaches in the methodology present other sets of challenges. One of the fieldwork principles as was to gain rapport with the participants through an ethnographic based observation study that adopted the observer-as-participant approach to describe and interpret the shared learned patterns of values, behaviour and beliefs. This approach was adopted as it gives the researcher the opportunity of living/co-habiting the same environment as the participants (Angrosino, 2007) to capture an accurate description and understanding

of the phenomenon of PA and PEB. However, irrespective of the researcher familiarity with some key actors, certain meetings vital to the study were held without extending an invitation to the researcher.

Fourth, the researcher relied largely on the sense of judgement of the local actor/key informant to determine the capacity/capability of selected participants deemed to be knowledgeable (Marshall, 1996) in the PA, PEB and HHSWM problems. The key informant sense of judgement was useful in determining the length of stay of participants who have spent not less than ten years in the locality. To avoid over-dependence on the sense of judgement of the local actor, the researcher having stayed in the community and interacted with residents for upwards of three months was able to have a mix of participation through the questionnaire survey and point data collection/snapshots in the focus group dialogues. This action became possible because, in the course of data collection, some residents sought to know the purpose of the researcher's mission, which resulted in the one-on-one informal conversation and explanation of the purpose of study. Through this encounter, the researcher was able to determine the capability of the would-be participant(s) and subsequently invite the person(s) to the focus group dialogues.

Fifth, the timing of the data collection was a constraint as the three and half of the four months spent in the locality took place during the dry season. However, to overcome this limitation, two weeks at the peak of the wet season (July 7-21, 2017) was spent to compare, appreciate and better understand the data collected earlier. Another challenge was the age of secondary data (population and housing census) was a limitation. The last population and housing census took place in 2006. Therefore, there is no accurate and reliable data on the demographics of the study location other than projections and the making of assumptions. Besides, the outdated population data were not accessible as bureaucratic bottlenecks, red-tapism and unnecessary bulk passing are some of the factors that make them unavailable. In addition, tertiary education centres appear not to have undertaken any study in the location, so the idea of getting such data was out of the question. To overcome this constraint, with the aid of the Internet, the researcher used the data available and with Google Earth, the aerial extent of physical development over 20 years (1997-2017) to extrapolate and corroborate the point readings taking on site.

Beyond population and census constraints, there were some phenomenological limitations. In the beginning, the fundamental challenge was to identify and determine the variant of phenomenology most suitable for the study as several approaches exist (Creswell, 2013). However, by engaging the views of several scholars on phenomenology, Moustakas (1994) was found to be quite suitable for this study. This approach entails the learning, understanding and appropriation of specific terms of phenomenological research like *epoche*, horizontalisation, imaginative variation to be internalised/utilised in the present study.

Also, several researchers and scholars (Moustakas, 1994; Creswell, 2013) think that to bracket one's previous experiences about a phenomenon entirely is difficult to achieve. However, by engaging in an *epoche* process was useful to the study as it brought out the researcher's subjective feelings about people who engage in indiscriminate waste disposal, their attitudes, belief systems and their lack of understanding of PA and PEB dimensions. This exercise substantially reduces my bias and preconceived thoughts towards taking a position in the study under investigation.

7.5.5 Conclusions

The starting theory for this study was that a strong PA would translate to a strong PEB (as residents are motivated to manage their solid waste), and its corollary that a weak PA correlates a weak PEB (Larson, *et al.*, 2015; Wilson, *et al.*, 2015; Scannel and Gifford, 2010a). This is conformity. However, a contradiction exists when a strong PA correlates with a weak PEB. Similarly, a contradiction persists if a weak PA aligns with a strong PEB (Keizer, Lindenberg and Steg 2008). The study established the following: The residents possess some rudimentary complements of cognitive, affective, and conative attributes of PA but lack the comprehensive combination of body, brain, and environment embodiment through which the inhabitants could respond collectively to the degradation of their environment with little or no government assistance. However, their embodiment potential is latent, and under-explored.

Given that there exists a socially active PA without a corresponding strong PEB (a contradiction/disconnect exists), the drivers for this apparent disconnect possibly arise from a combination of lack of knowledge, disempowerment, disillusionment, apathy,

and alienation (possibly what is commonly termed learned helplessness). These findings are contrary to what one would expect from the seemingly religious, and socio-cultural beliefs, and practices of the residents. Guided by the insights from the principles of phenomenology, neurophenomenology, and neuroscience, residents could be re-motivated to take up the task of re-aligning their PEB practices to match their socially-strong PA-practices.

Despite so many upheavals arising from the effects of modernisation, urbanisation, and the influx of pentecostal Christian activities, the residents' traditional festivals have thrived mainly because of rituals. Even as some of the residents may have converted to the new religion their roots still remain in ATR, and by extension they have imbibed the ideals of ATR, which are then transferred to their new religions, and ways of life. The strong PA oriented social activities which the residents possess could be harnessed by way of the elevation of this aspect of PA to PEB activities. In other words, there exists a great opportunity to ritualise the collection, and management of waste in order to stem the incidence of indiscriminate waste disposal. Drawing on this insight on ritual-based practices among the residents, this study will contribute to the sustainable city vision, and by extension in tandem with the New Urban Agenda whose key objectives comprise inclusivity, and sustainability.

Among the contributions of this study to science is that the fields of human endeavour have what it takes to solve problems that look hydra-headed, and neuroscience is about the way of looking at things differently. One of such is the application of the relevant theories to shine light on a problem at hand. In this connection, the study has brought out the relationship between body, brain, and environment through the use of indiscriminate solid waste disposal. In this case, specialists of diverse linings, and interests could spend precious time to achieve a task that no one single discipline could have exclusive preserve over. This fact is in tandem with the knowledge view of the world that is moving from multi-disciplinarity, to trans-disciplinarity. Moreover, by focusing on the nature of internal events that made use of the perception, imagery, and experience of the subjects with the environment, and its degradation, the residents will become more aware of the importance of their immediate environment, and through this knowledge will be motivated to find enduring solutions to their problems. Another contribution of the study to humanity is that through the philosophical

underpinnings, methodologies, and analysis, man can engage, and find solutions for similar situations like flooding, and deforestation.

7.5.6 Recommendations for further research

Arising from the heightened findings, and contribution, this study has prioritised five areas for further/complementary research. The first relates to the weakening of cooperation, and concern among some residents, who cease to bother about the escalating degradation of the living quarters while at the same time being committed to solving problems in their home-villages/settlements. In particular, the strong PA of the nomadic residents (male or female) who take delight in seeing to the welfare of their livestock, while remaining oblivious to the related plight they cause to the host calls for further investigation. Even though this phenomenon has been briefly explored in this study, further research needs to be done to understand better the phenomenon, and how it could be mitigated.

The second area is to undertake a study using neuroimaging tools like fMRI on persons that have expressed misgivings or discontent about indiscriminate waste disposal. In this study, the researcher was able to get to know the residents who expressed misgivings but relied on studies conducted by neuroscientists elsewhere, and in a different context, and location to assume what the residents' reactions in neurophenomenological terms may likely be.

In the third area, this study finds that one of the key drivers of the disconnect between PA and PEB/waste concerns is flooding, as a substantial portion of the settlement is submerged for up to seven months. The process (tools and method as well as theoretical framework) the researcher applied can be extended to the issues of flooding, and its entanglements with PA, PEB, and waste. If same study is undertaken, the residents' coping mechanisms (among other insights) would come to the fore and possibly facilitate mitigation interventions for residents as well as other communities facing similar PA/PEB challenges.

The fourth area for further study is the embodied mind, conditioned by the central nervous system. Despite the uninhabitable living conditions, people continue to live in this settlement irrespective of the escalating place detachment, and alienation (PD/A).

In the course of the fieldwork for this study several residents expressed their willingness to relocate to areas with better living conditions, while other residents were quite comfortable to stay. Why would these persons be comfortable? Given the current state of environmental degradation, and the deterioration of their habitat, the study expected those who expressed willingness to stay to be more disposed to sustained solutions to their waste, and flooding problems. Could it be that they are unaffected by environmental degradation? Findings from such a study with the relative cognitive dissonance as the key question could pave the way towards more effective mitigating approaches.

A more enduring and sustainable aspect of the study, which is recommended for further studies, is transformative learning, and prototyping responsive interventions. The initial scope of the study had aimed at a prototyping study for providing both methodological and theoretical insights to guide knowledge development in support of this shift. In other words, through the research data tools (focus group dialogues, phenomenological guided-interviews, and ethnographic observation), the first part of achieving this shift – collaboration is complete. The second aspect is the participation of residents (in their different ethnic, social, and religious groupings in repeated, iterative cycles of planning, doing, observing, and reflecting within a time frame of using the 3Rs for the waste management process. This shift involves a combination of action (taking steps to overcome illegal dumping), and change (in anti-environmental behaviour/attitudes, and recognising the 'worth' of solid waste).

REFERENCES

- Ajala; A.S., 2011. Space, identity and health risks: A study of domestic waste in Ibadan, Nigeria. University Library system, University of Pittsburgh, USA; INTERNET. <http://hcs.pitt.edu>, accessed 12 July 2015.
- Ajzen, I., 1991. The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50,179-211.
- Akhigbe, H., 2017. Installation of “Pere of Olodiana Kingdom” in Edo. *The Reliance*, 24-30 November.
- Alain, A, Arnott, S, Dyson, B., 2014. Varieties of auditory attention. In Ochsner, K. and Kosslyn, S. (eds), *The Oxford handbook of cognitive neuroscience*, Vol.1, Pp. 215-236 Oxford, England.
- Alcorta, C.S., and Sosis, R., 2005. Ritual, emotion, and sacred symbols: The evolution of religion as an adaptive complex. *Human Nature*, 16(4), 323-359.
- Aljazeera, 2012. People and power; The Nigerian connection INTERNET. <https://www.youtube.com/watch?v=tmef3XtoIHK> accessed 10 August 2017
- Andriotis, K., 2009. Sacred site experience: A phenomenological study. *Annals of Tourism Research*, 36(1), 64-84.
- Angrosino, M., 2007. Doing ethnographic and observation research. Sage Publications Limited, London, Great Britain.
- Atran, S. Axelrod, R, and Davis, R. (2007). Sacred barriers to conflict resolution. *Science*, 317, 1039-1140.
- Bar, M and Bubic, A., 2014. Top-down effects in visual perception. In Ochsner, K and Kosslyn, S. (eds), *The Oxford handbook of cognitive neuroscience* Vol.1 Pp. 60-73, Oxford, England.
- Baron, R.M, and Kenny, D.A., 1986. The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.

Bartlett, F. 1932. Remembering: A study in the experimental and social psychology. Cambridge university Press INTERNET https://www.learning-theories.org/doku.php?id=learning_theories:schema_theory accessed 27 June 2019

Bear, M.F, Connors, B.W. and Paradiso, M.A., 2007. Neuroscience: Exploring the Brain, Third edition Lippincott Williams and Wilkins, Philadelphia, USA.

Bell, C., 1990. The ritual body and the dynamics of ritual power, *Journal of Ritual Studies*, 4(2), 299-313.

Bell, C., 1992. Ritual theory, ritual practice. Oxford University Press. New York, USA.

Bell, C., 1997. Ritual: perspectives and dimensions. Oxford University Press. New York, USA.

Bigon, L., 2008. "Between local and colonial perceptions: The history of slum clearance in Lagos (Nigeria), 1924-1960" *African and Asian Studies* 7: 49-76.

Boyer, P and Lienard, P., 2006. Why ritualised behaviour? Precaution systems and action parsing in developmental, pathological and cultural rituals, *Behavioral and Brain Sciences*, 29, 1-56.

Bunting, T.E., and Cousins, L.R., 1985. Environmental dispositions among school-age children: A preliminary investigation. *Environment and Behavior*, 17, 725-768.

Carrasco, M., Ling, S., and Read, S., 2004. Attention alters appearance, *Nature Neuroscience*. 7(3), 308-314.

Cerulo, K.A. 2014. "Continuing the story: Maximizing the intersection of cognitive science and sociology." *Sociological Forum* 29(4): 1012-1019

Chandak, S.P., 2010. Trends in solid waste management – issues, challenges, and opportunities. *International Consultative Meeting on Expanding waste management services in developing countries*, March Pp.18-19, Tokyo, Japan.

Chao, Y-L and Lam, S-P., 2011. Measuring responsible environmental behaviour: Self-reported and other-reported measures and their differences in testing a behaviour model. *Environment and Behaviour*, 43(1), 53-71.

Corral-Verdugo, V., (1997). Dual "realities" of conservation behaviour: Self-reports versus observations of reuse and recycling behaviour, *Journal of Environmental Psychology*, 17(2)1, 35-145.

Creswell, J.W., 2013. Qualitative inquiry and research design: Choosing among five approaches. Sage Publications, Los Angeles, USA.

Csordas, T., 1999. Embodiment and cultural phenomenology: In perspective of embodiment: The intersection of nature and culture, Weinn, G and Haber, H. (eds). New York Routledge, Pp.143-164.

Csordas, T., 1993. Somatic modes of attention, *Cultural Anthropology*, 8(2), 135-156.

Damasio, A., 1998. Emotions in the perspective of an integrated nervous system, *Brain Research Reviews*, 26, 83-86.

Damasio, A., 2010. *Self Comes to Mind; Constructing the conscious brain*. William Heinemann Press, London, Great Britain.

d'Aquili, E.G and Newberg, A. B., 1998. The neuropsychological basis of religions, or why God won't go away, *Zygon*, 33(2), 180-201.

Davis, J.L., Green, J.D. and Reed, A., 2009. Interdependence with the environment: Commitment, interconnectedness, and environmental behaviour. *Journal of Environmental Psychology*, 29, 173-180.

Deacon, D., Pickering, M, Golding, P, and Murdock, G., 2010. Researching communications: A practical guide to methods in media and cultural analysis. Bloomsbury Academy London, Great Britain.

Deutscher wetterdienst. 2018. (German meteorological office) INTERNET <https://deutscher.wetterdienst.wikipedia> accessed 12 March 2018.

DIVA-GIS Computer programme for mapping geographic information analysis, INTERNET www.diva-gis.org/gdata accessed 8 September 2017.

Dmochowski, Z.A., 1990. An introduction to Nigerian traditional architecture volume two south-west and central Nigeria: Ethnographical condition in association with the National commission of museums and monuments Lagos, Nigeria

Dornan, J.L., 2004. Beyond belief: religious experience, ritual, and cultural neurophenomenology in the interpretation of past religious systems, *Cambridge Archaeological Journal*, 14(1), 25-36.

Edo State Government., 2010. Edo state sanitation and pollution management Law No. 5. Benin City, Nigeria.

Ekere, W., Mugisha, J. and Drake, L., 2009. Factors influencing waste management separation and utilisation among households in Lake Victoria Crescent, Uganda. *Journal of Waste Management*, 29, 3047-3051.

Ellis, S., 2016. This present darkness; A history of Nigerian organised crime. London. Oxford University press, England.

Environmental Performance Index (EPI)., (2014). Scoring and ranking the world's environmental performance, INTERNET. <http://globalsherpa.org/score-ranking-world-environment-performance-index> accessed 12 July 2015.

Ero, O.O., 2003. *Igue* and other festivals in Benin kingdom. INTERNET: www.edofolks.com/html/pub13.html accessed 20 September 2016.

Fischer, R., Callander, R., Reddish, P., and Bulbulia, J., 2013. How do rituals affect cooperation? An experimental field study comparing nine ritual types. *Human Nature*, 24,115-125.

Flyvbjerg, B., 2006. Five misunderstandings about case-study research *Qualitative Inquiry*. 12(2), 219-245.

Froese, T, and Fuchs, T., 2012. The extended body: A case study in the neurophenomenology of social interaction. *Phenomenological cognitive science*, 11, 205-235.

Fuster, J.M., 2013. The Neuroscience of freedom and creativity, our predictive brain. London Cambridge university press.

Gallese, V., 2001. The “shared manifold” hypothesis; From mirror neurons to empathy. *Journal of Consciousness Studies*, 8(5-7), 33-50.

Grill-Spector, K., 2014. Representation of Objects. In Ochsner, K. and Kosslyn, S. (eds), *The Oxford handbook of cognitive neuroscience* Vol. 1- Pp. 11-17, Oxford, England.

Hansen, W., Christopher, M., and Verbuecheln, M., 2002. EU waste policies and challenges for local and regional authorities, INTERNET. <http://www.arctic->

transform.eu/files/projects/2013/1921-1922 background paper waste accessed 8 August 2016.

Hammond, M., Howarth, J. and Keat, R., 1991. Understanding phenomenology, Basil Blackwell limited Oxford, England,.

Hernandez, B. Hidalgo, M.L., and Salazar-Laplace. M.E., 2007. Place attachment, place identity in native and nonnatives, *Journal of Environmental Psychology*, 27(4), 310-319.

Hinds, J., and Sparks, P., 2007. Engaging with the natural environment: The role of affective connection and identity. *Journal of Environmental Psychology*, 28,109-120.

Holden, C., 2008. Study shows how degraded surroundings can degrade behaviour. *Science*, 322, 1175.

Hopper, J.R., and Nielsen, J.M.C., 1991. Recycling as altruistic behaviour: Normative and behavioural strategies to expand participation in a community recycling program. *Environment and Behaviour*, 23,195-220.

Husserl, E., 1960. Cartesian meditations: An introduction to phenomenology, (trans), Dorian Cairns, Kluwer Academic Publishers, Dordrecht, Netherlands.

Investment and Promotions Company For Economic Cooperation (PROPARCO),. 2012. Waste: The challenges facing developing countries. *PROPARCO. Nov. 8 issue 15*. INTERNET. accessed 18 June 2015.

Isekhure, N., 2007. Cultural Implication of *Igue* festival: A brief focus on its origin and cultural and spiritual significance. Paper presented at the Benin traditional dance foundation, 'A compendium of speeches/lectures', Oba Akenzua cultural centre, Benin City, 21-23 November.

Iyare, E.O.A., 2009. Edo traditional festivals and ceremonies, The INTERNET. <http://www.edonation.net>, accessed 13 May 2015.

Izevbigie, O., 2007. Social relevance of *Igue* Festival in modern society, paper presented at the Benin traditional dance foundation, 'A compendium of speeches/lectures', Oba Akenzua cultural centre, Benin City, 21-23 November.

Janata, P., 2005. Brain networks that track musical structure, *New York Academy of Sciences*, 1060, 111-124.

Jorgensen, B. and Stedman, R. 2001. Sense of place as an attachment: Lakeshore owners attitudes towards their properties. *Journal of Environmental Psychology*, 21, 233-248.

Keizer, K, Lindenberg, S, and Steg, L. (2008). The spreading of disorder, *Science*, 322, 1681-1685.

Kellert, S.R., 2002. Experiencing nature: Affective, cognitive, and evaluative development in children. In Kahn, P.H. and S. Kellert, S.R. (eds), *children and nature: Psychological, Sociological & Evolutionary Investigation* Pp. 117-151. Cambridge. M.I.T. Press USA.

Khatib, I.A., 2011. Municipal solid waste management in developing countries: Future challenges and possible opportunities. *International Solid Waste Management*, 11, 37-48.

Koestner, R. Bernieri K, and Zuckerman, M., 1992. Self-regulation and consistency between attitudes, traits, and behaviours. *Personality and Social Psychology Bulletin*, 18, 52-59.

Kumi-Larbi, A, Yunana, D, Kamsouloum, P Webster, M, Wilson, D.C, Cheeseman, C., 2018. Recycling waste plastics in developing countries: Use of low-density polyethylene water sachets to form plastic bonded sand blocks. *Waste Management*, 80, 112-118.

Kupka, T. Mancini, M. Irmer, M, Weber, R., 2008. Investigation of ash deposit formation during co-firing of coal with sewage sludge, saw-dust and refuse derived fuel. *Fuel*, 87, 2824-2837

Kyle, G.T., and Chick, G., 2007. The social construction of a sense of place. *Leisure Science*, 29(3), 205-229.

Kyle; G.T., Jun; J and Absher, J.D., 2014. Repositioning Identity in conceptualizations of human–place bonding, *Journal of Environment And Behavior*, 46(8), 1018-1043.

Lakoff, G. 2010. Why it matters how we frame the environment. *Environmental communication*, 4(1): 70-81.

Lakoff, G. and Johnson, M. 1980. The metatphorical restructure of the human conceptual system, *Cognitive Science*, 4:195-208.

Larson, L.R, Stedman, R., Cooper, C.R., and Decker, D.J., 2015. Understanding the multi-dimensional structure of pro-environmental behaviour. *Journal of Environmental Psychology*, 43, 112-124.

Lenkiewicz, Z and Webster, M., 2017. Making waste work: A toolkit community waste management in low and middle-income countries. INTERNET https://CIWM-journal.couk/downloads/making-waste-work_executive. accessed October 26 2018.

Lewis, J.W., Wightman, F.L., Brefczynski, J.A, Phinney, R.E., Binder, J.R., and DeYoe, E.A., 2004. Human brain regions involved in recognising environmental sounds. *Cerebral Cortex*, 14(9), 1008-1021.

Li, S., 2003. Recycling behaviour under China's social and economic transition: The case of metropolitan Wuhan. *Environment and Behaviour*, 35(6), 784-801.

Lindlof. T.R and Taylor, B., 2002. Qualitative communication research methods. Sage, London, Great Britain.

Living Earth, 2015. Waste to wealth, INTERNET. info@livingearth.org.uk accessed 20 November 2015.

Lohmar, D., 2006. Mirror neurons and the phenomenology of intersubjectivity, *Phenomenology and the Cognitive Sciences*, 5, 5-16.

Lutz, A., Lachaux, J-P., Martinerie, J., and Valera, F.J., 2002. Guiding the study of brain dynamics using the first person data; Synchrony patterns correlate with ongoing conscious states during the simple visual task, *Proceedings of the National Academy of Science*, 99, 1586-1591.

Lutz, A and Thompson, E., 2003. Neurophenomenology; Integrating subjective experience and brain dynamics in the neuroscience of consciousness, *Journal of Consciousness Studies*, 10(9-10), 31-52.

Mabogunje, A.L, and Kates, R.W., 2004. Sustainable development in Ijebu-Ode, Nigeria. The role of social capital, participation, science and technology CID working paper no. 102, Cambridge MA, Sustainable development program, Centre for

International Development, Harvard University Pp: 1-15 INTERNET
<http://www.cid.harvard.edu/cidwp/102.htm/> accessed 8 February 2016.

Marshall. M.N., 1996. The key informant technique, *Family Practice*, 13(1), 92-97.

Marshall. M.N., 1996. Sampling for qualitative research, *Family Practice*, 13(6), 522-525.

Malik, A.K.N, Abdullah, H.S and Manaf, A.L. 2015. Community participation on solid waste segregation through recycling programmes in Putrajaya, *Procedia Environmental Sciences* 30,10-14

Merleau-Ponty. M., 1962. Phenomenology of perception, (Trans) by Smith, C Routledge Classics, London United Kingdom.

Millar, D., Kendie, S.B, Apusigah, A.A, and Haverkort, B., (eds), 2005. African knowledge and sciences: Understanding and supporting the ways of knowing in sub-Saharan Africa, *Compass series on Worldviews and Sciences 3 Papers and Proceedings of an International Conference of African Knowledges and Sciences*. October 23-29 2005, Bolgatanga U/R Region, Ghana.

Minn, Z., Srisontisuk, S., and Laohasiriwong, W., 2010. Promoting people's participation in solid waste management in Myanmar. *Research Journal of Environmental Sciences*, 4, 209-222.

Moustakas. C., 1994. Phenomenological research methods, Sage Publications Thousand Oaks, California, USA.

National Bureau of Statistics, Nigeria, 2017. Nigeria data portal. INTERNET.
nigeria.opendataforafrica.org/data?...National%20Bureau%20of%20Statistics%2C%20... accessed 12 April 2018.

National Population Commission., 2006. Population and housing census of the federal republic on Nigeria. Edo State priority tables Vol 1

Nevadomsky, J., and Rosen, N., 1988. The initiation of a priestess: Performance and imagery in Olokun ritual. *The Drama Review*, 32(2), 186-207.

Nishio, C., and Takeuchi, T., 2005. Factors of household recycling and waste reduction behavior. *Asia Pacific Advances in Consumer Research*, vol. 6,Pp.46-51

INTERNET. <http://acrwebsite.org/volumes/ap06/AP-06>. accessed 14 September 2015.

Nollywood, 2016. Ikhoul-erie. INTERNET. <https://www.com/watch?V=mFXYqvHws94&t=72s>. accessed 23 August 2017.

Ochiagha, T., 2018. E.H Duckworth's Clean-Up Lagos campaigns: the political use of *ex-centric* colonial discourse on African dirt *Social Dynamics-A Journal of African Studies*. 44(1).21-37.

Ogbonmwan, F., 2007. The religious implications of *Igue* festival. Paper presented at the Benin traditional dance foundation, 'A compendium of speeches/lectures', Oba Akenzua cultural centre, Benin City, 21-23 November.

Ogu, V.I., 2000. Waste management in Benin City: Private sector and municipal waste management in Benin City Nigeria. *Environment and Urbanization*, 12(2),103-117.

Ogwueleka, T., 2009. Municipal solid waste characteristics and management in Nigeria. *Iran Journal of Environmental Health, Science and Engineering*, 6(3), 173-180.

Ojedokun, O., and Balogun, S.K., 2013. Self-monitoring and responsible environmental behaviour: The mediating role of attitudes towards littering, *Frontiers in Psychological and Behavioural Science*, 2(1), 31-38.

Olivares, F.A, Vargas, E., Fuentes, C, Martinez-Pernia, D. and Canales-Johnson, A., 2015. Neurophenomenology revisited: Second-person methods for the study of human consciousness. *Frontiers in Psychology*, 6(673), 1-12.

O'Reilly, K., 2005. *Ethnographic methods*. Routledge, New York. USA

Oseghale, P., 2011. Waste management handling in Benin City. INTERNET. <https://www.theseus.fi/bitstream/handle/10024/30105/Oseghale%20Project.pdf?Sequence=1> accessed 22 August 2017.

Ostrom, E., 2008. *Governing the commons: The evolution of institution for collective action*. Cambridge University Press, USA.

PACSA, (2015). Packaging council of South Africa, INTERNET. www.pasca.co.za accessed 25 May 2015.

Petitmengin, C., 2006. Describing one's subjective experience in the second person: An interview method for the science of consciousness. *Phenomenology and Cognitive Science*, 5, 229-269.

Petitmengin, C., 2007. Towards the source of thoughts: The gestural and transmodal dimension of lived experience, *Journal of Consciousness Studies*, 14(3), 54-82.

Piaget, J. 1952. The origins of intelligence in Children. Translated by M. Cook. New York: International Universities Press.

Pope John Paul II., 1987. The earth will not continue to offer its harvest. INTERNET <https://www.goodreads.com/.../24902-the-earth-will-not-continue-to-offer-its-harvest>. accessed April 10 2017

Porro, C.A., Lui, F., Facchini, P., Maieron, M., Baraldi, P., 2004. Percept-related activity in the human somatosensory system: Functional magnetic resonance imaging studies. *Magnetic Resonance Imaging*, 22, 1539-1548.

Project Management Institute (PMI), 2010. Implementing organization change using action research in two Asian cultures. research and education conference proceedings, *Project Management Institute Incorporated* (2010).

Prussin, L., 1999. Non-western sacred sites: African models, *Journal of the Society of Architectural Historians*, 58(3), 424-433.

Quellette, J.A., and Wood, W. 1998. Habit and intention in everyday life: The multiple processes by which past behaviour predicts future behaviour. *Psychology Bulletin*, 124, 54-74.

Ramkissoon, H., Smith, L.D.G., and Weiler, B., 2013. Testing the dimensionality of place attachment and its relationship with place satisfaction and pro-environmental behaviours: a structural equation modeling approach. *Tourism Management*, 36, 552-566.

Ramkissoon, H., Weiler, B., and Smith, L.D.G., 2014. Place attachment and pro-environmental behaviour in national parks: The development of a conceptual framework. *Journal of Sustainable Tourism*, 20(2), 257-276.

Ratcliffe, M., 2006. Phenomenology, neuroscience, and intersubjectivity. In Dreyfus, H. and Wrathall, M.A. (eds), *A Companion to Phenomenology and Existentialism*. Pp.329-345. Blackwell Publishing Limited, London.

Ravitch; S.M and Riggan, M. (2017). *Reason and rigor: How conceptual frameworks guide research*. Sage publications incorporated Los Angeles.

Roth, W-M., 2004. Cognitive phenomenology: Marriage of phenomenology and cognitive science, *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 5(3), 12.

Rousseau J-J., 2004. The project Gutenberg e-Book of Emile [INTERNET intersci.ss.uci.edu/wiki/ebooks/BOOKS/Rousseau/Emile_Rousseau.pdf](http://www.gutenberg.org/files/10411/10411-h/10411-h.htm) accessed May 10 2017

Sadler. G.R., Lee. H-C, Lim. R. S-H and Fullerton, J., 2010. Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy, *Nursing and Health Sciences*, 12, 369-374.

Salamone, F.A. (ed), 2004. *Encyclopedia of religious rites, rituals and festivals* Routledge New York.

Saroglou, V., 2011. Believing, bonding, behaving and belonging: The big four religious dimensions and cultural variation. *Journal of Cross-Cultural Psychology*, 42(8), 1320-1340.

Sarte, J-P., 2004. *The imaginary: A phenomenological psychology of the imagination*, (trans), Webber J., Routledge Press. London.

Saunders, M., Lewis, P. and Thornhill, A., 2012. *Research methods for business students*, Pearson Professional, Limited Essex, England.

Scannell, L and Gifford, R., 2010a. Defining Place attachment: A tripartite organizing framework. *Journal of Environmental Psychology*, 30(1), 1-10.

Scannell, L and Gifford, R., 2010b. The relations between natural and civic place attachment and pro-environmental behaviour. *Journal of Environmental Psychology*, 30(3), 289-297.

Schwab, N. Harton; H.C, and Cullum; J.G., 2014. The effects of emergent norms and recycling behaviour. *Journal of Environment and Behaviour*, 46(4), 403-422.

Schwarzlose, R.F., Swisher, J.D., Dang, S., and Kanwisher, N., 2008. The distribution of category and location information across objective-selective regions in human

visual cortex, *Proceedings of the national academy of Sciences of the United States of America*. Vol. 105 no. 11pp. 4447-4452. INTERNET <http://www.jstor.org/stable/25461437> accessed: 20 April 2018.

Seamon, D., 2011. Place, place identity and phenomenology: A Triadic interpretation based on J.G. Bennet's systematics. In Casakin, H., Romice, O., and Porta, S., (eds). *The role of place identity in the perceptive, understanding and design of Built Environment*. Pp. 3-21 Bentham Science Oak Park, Illinois, USA.

Shekdar, A.V., 2008. Solid waste management: An integrated approach for Asian countries. *Journal of Waste Management*, 29(4), 1438-1448.

Sinthumule, I.N, and Mkumbuzi, H.S., 2019. Participation in community-based solid waste management in Nkulumane suburb, Bulawayo, Zimbabwe. *Resources*.8(30),.1-16.

Stedman, R.C., 2002. Towards a social psychology of place: Predicting behaviour from place-based cognitions, attitudes, and identity. *Environment and Behavior*, 34, 561-581.

Steg. L., Bolderdijk, J.W., Keizer, K and Perlaviciute, G., 2014. An integrated framework for encouraging pro-environmental behaviour: The role of values, situational factors and goals. *Journal of Environmental Psychology*, 38, 104-115.

Steg, L. and Vleg, C., 2009. Encouraging pro-environmental behaviour: An integrative review of research agenda. *Journal of Environmental Psychology*, 29, 309-317.

Sujauddin, M., Huda, M.S., and Rafiqul, A.T.M., 2008. Household solid waste characteristics and management in Chittagong, Bangladesh. *Journal of Waste Management*, 1688-1695.

Symon, G. and Cassel, C., 2012. Qualitative organizational research: Core methods and current challenges. Sage Publications, Los Angeles, USA.

Teisl, M.F., and O'Brien, R., 2003. Who cares and who acts? Outdoor recreationists exhibit different levels of environmental concerns and behaviour, *Environment and Behaviour*, 35, 506-522.

Thompson, E. (ed), 2003. The problem of consciousness: New essays in the phenomenological philosophy of mind. *Canadian Journal of Philosophy* suppl., 29, vii-ix.

Thompson, E., 2010. Mind in life: Biology, phenomenology, and the sciences of the Mind. The Belknap Press of Harvard University press, Massachusetts, USA.

Todres, L, and Galvin, K.T., 2012. "In the middle of everywhere": A phenomenological study of mobility and dwelling among rural elders. *Phenomenology and Practice*, 6(1), 55-68.

Turner, V.W. 1973. Symbols in African ritual, *Science* 179(4078), 1100-1105

United Nations Environment Programme (UNEP)., 2010. The framework of the global partnership on waste management, The INTERNET. http://www.unep.or.jp/letc/SPC/news-nov10/3_FrameworkOfGPWM.pdf _accessed_3 June 2015.

Varela, F., 1999. Neurophenomenology INTERNET <https://neurophenomenology.wordpress.com/category/Francisco-Varela> accessed 8 November 2015.

Varela, F., 1996. Organism a meshwork of selfless selves. In Tauber, A (ed), vvv pp. 79-107. Kluwer Academic Publishers Dordrecht, Netherlands.

Vaske, J.J. and Kobrin, K.C., 2001. Place attachment and environmentally responsible behaviour, *The Journal of Environmental Education*, 32(4), 16-21.

Vermersch, P., 2009. Describing the place of introspection. *Journal of Consciousness Studies*, 6, 17-42.

Vilches, R, Masterson, D, Stretz, J. Oelz, B., 2015. 'Wasteware' benchmark indicators for integrated sustainable waste management in Cities, *Waste Management*, 35, 329-342.

Vining, J. and Ebero, A., 2012. What makes a recycler? : A comparison of recyclers and non-recyclers. *Environment and Behaviour*, 22(1), 55-73.

Vischers, V, Wickli, N and Siegrist, M., 2015. Sorting out food waste behaviour: A survey on the motivators and barriers of self-reported amounts of food waste in households. *Journal of Environmental Psychology*, 45, 66-78.

Wertz, F.J, McMullen, L.M, Josselson, R. Anderson, R. and McSpadden, E., 2011. Five ways of doing qualitative analysis; phenomenological psychology, grounded theory, discourse analysis, narrative research, and intuitive inquiry. The Guilford Press, New York, USA.

Wilson, D.C. and Scheinberg, A., 2010. What is good practice in solid waste management? *Waste Management and Research*, 28(12), 1055-1056.

Wilson, D.C, Rodic, L, Scheinberg, A, Velis, C.A., Alabaster, G., 2012. Comparative analysis of solid waste management in 20 Cities. *Waste Management and Research*, 30(3), 237-254.

Wilson, D.C, Rodic, L, Cowing, M.J, Velis, C.A, Whiteman, A.D, Scheinberg, A, Wiltermuth, S.S, and Heath, C., 2009. Synchrony and cooperation. *Association for Psychological Science*, 20(1),1-5.

Wolf, K.L, Krueger, S, and Flora, K., 2014. Place attachment and meaning-A literature Review. In: *Green Cities: Good Health* ([www.greenhealth Washington.edu](http://www.greenhealth.washington.edu)). College of Environment, University of Washington, USA.

Zahavi, A and Zahavi, A., 1997. The handicap principle: A missing piece of Darwin's puzzle. Oxford University Press, New York, USA.

Zihl, J., 2014. Perceptual disorders In Ochsner, K. and Kosslyn, S. (eds), *The Oxford handbook of cognitive neuroscience* 1, Pp. 193-214 England Oxford.

APPENDICES

APPENDIX 1: Key Informant interviews

Background	<p>Given their position in the settlement, three key informants were selected on the recommendation of resident 'friends' using the following criteria:</p> <ul style="list-style-type: none"> • Able to provide more information and a deeper insight into the happenings around them. • Able to communicate their views and impartially too. <p>Based on these qualities two house-owners and a priest were chosen; their views on a range of issues.</p>
Objectives	<p>The following objectives informed the use of key informants in the settlement</p> <ul style="list-style-type: none"> • Give informed and unbiased information of waste management and disposal in the settlement • Information is easily accessible as the informants have lived in the settlement for upwards of ten years.

Key Informant 1

PA sub-questions/theme	Response/Description
1. What are individual and community rituals which you and Urora community engage in?	<p>We have the Christians, Moslems, African traditional religion, and free thinkers. Everyone that practices the other religion must have come from the traditional religion as it originated in Africa. Freethinkers: some don't believe in God, they believe they're self-made. Christian religion originated from the western world and are also influenced by it because its where the Bible came from. Moslems originated from the Arab and its mostly influenced by it because its where the Quran originated from. The African traditional religion originated from us which most of our people practice and all Muslims and Christians cannot tell you that they don't know how the traditional practice originated from because when you were young your parents must have taken you to the village and most time you will see and experience it, and they have days set aside to practice their religion and celebrate their ceremony between July and August. There was a certain time when it was so serious that Christians will not be allowed to go to Church because it was done mostly on Sundays and a pastor was beaten for coming out, and the case was taken to court and Christians came out to protest. After the case, the conflict was later resolved, and it was reduced, and there was a law that only men were allowed to see what was going on and the women would close their eyes, so this brought them together, and the non-native became native. The traditional worshippers during their ceremonies don't litter the environment because they kill in one spot and don't spill blood everywhere and after they gather it and dispose of it and when waste gathers it becomes so horrible and before the coming of the white men waste where gathered at the back of the individual's house and when the white men came they brought about waste management and in Urora here we enjoyed it for some time. The place that enjoyed it most was the market area, and they appointed three waste managers in charge of the place, and the compliance is slow, and Urora is host to our Northern people the Muslim people say they are dirty but they don't believe so because it's a communal lifestyle before they pray they have where they keep their kettle and where they wash their legs and they also have where they throw their waste, and they don't defecate anywhere because of the latrines provided. Everybody have their behavioural pattern as affected by their religion. The government are not helping matters because when they cut down the trees for timber or cut down tree while constructing the roads, it destroys the ecosystem and increases migration and people move inside. Individual rituals of a</p>

	Christian is to wake up every morning and pray, and some Churches would say 5:30 they open to the public and the Moslem wake up 4:30 to pray and the traditional too also pray before their ceremonies and after prayer they sweep around their compound to the street so that everywhere is clean and its is packed into containers for the waste managers to come and carry and dispose of.
2. Which of these rituals do you and the community cherish and respect most?	We respect moreover, everybody jointly agree in and cherish from my rating is the Christmas because you see all religion traditional and Muslims come together to celebrate it with their Christian brother and you see that when it comes to sanitation the Christians are dominating but you still see the Moslems and traditionalist trying their best to keep the environment clean and it's bringing the people together, and I have not seen heap of waste gathered at the front of someone's house and it. The Christians dominate when it comes to religion because it is done in the open but the traditionalist mostly do it in secret most times at night, and that is what is making the religion to die down, and you do not see traditionalist holding crusades.
3. Why do you and the community engage in ritual activities?	This is because we came to meet it like that you can say its an inherited belief because everybody believe that is God supreme to any other being which we worship
4. Could there be a myth associated with the commonly practised rituals?	As a Christian, if you do not keep your compound clean God cannot dwell in it, and there is a popular saying that says cleanliness is next to godliness and vice versa. Before now you see the traditionalist painting their house with white paint which symbolises purity and cleanliness.
5. What is your impression about solid waste and its management at Uroa settlement?	Just of recent the waste management came into Uroa at about four years ago, and the awareness just started to grow within them, and some believe that why are they supposed to pay for their waste to be evacuated when they have where to dispose of it. Government is trying their best and had the tax of the waste managers reduced to improve work, and I can say that 25% of Uroa have been captured. People dispose the sachet water and can water they drink and since they are plastic and don't decay and we do not have bins for recycling, and I believe that those that dispose of the plastic wrongly are as a result of social behaviour.
6. Have any Uroa community member relocated elsewhere due to waste conditions?	I have heard of an experience it became a problem because when they were disposing of the waste, the house was still under construction. When practising livestock farming people do not like the stench of livestock waste which increases migration. There is a place at Uroa central where waste gathered it is the flood that gathered them there.
PEB/WASTE sub-question/Theme	Response/Description
1. How and where do the residents generate and dispose of their solid waste?	Many dispose their waste on vacant lands while some when its raining dispose of their waste in the flood/erosion for it to carry away to another environment, some burn their waste which is not environmentally healthy while others bury their waste and some carry the waste to the moats around them to dispose. When the government were closing the burrow pit by Uyi Edo filling station, it was a thug of war with the people of Uroa and measures were taken to stop the disposing of waste by the residents. Measures like: the people where flogged, driven and many wheel barrows were seized and some were arrested, but the residents continued. The residents want to dispose waste, but we have not been able to design the kind of system that the people like since they like communal way of disposing the government should make the waste managers to pack and dispose of the waste on a daily basis and few people patronise the waste managers.
2. What types of waste do the residents generate more and why?	The people generate kitchen waste more because it's mostly a residential area and not too much industries in the place and the basic waste like palm kernel shell can be use on to tar road but they mostly produce kitchen waste.
3. Relate one or more experiences you have had due to	Generally because all the lands are being sold off I can say that 90% of the lands here at Uroa are being occupied by buildings so

indiscriminate waste disposal within Urora settlement?	the people start looking for a place to dispose of the waste if you see the moat demarcating Urora from Eyaen you can see that they have dumped waste there and when rain comes you will see that many of the buildings, flood has taken over and when you look at St. Gabriel Catholic church and opposite Vin-oil filling station and by the Urora market you see lot of waste there. It has always been like that when they see vacant land the people see they now utilize them.
Contradictory/conforming questions/theme	sub-Response/Description
1. What are the factors/conditions that warrant the co-existence of conforming and contradictory PA and PEB?	When picking waste from house to house you see mostly the women, and most of the people are farmers and you get more of farm waste coming to look at it from the economic side, at the Urora market you see them from the traders waste too are more and wanting to remove the waste our northern brothers will say that is the base where their cattle and sheep will rest and sleep on, and they pile up the waste within the years, and if you go a little behind the market you'll see what I am talking about and when it came to clear the waste it cost a large amount of money to do that and we are talking about hundreds of thousands. The kind of work you do produces the kind of waste you get and as you can see the farming waste is dying due to the constructions buildings and the opening up of the environment but if the government are serious. They give out contracts to waste manager, and they don't even inspect if they are doing a good job, and the job is capital intensive and to buy a tipper to pack the waste is about 5million, and a compactor depending the size is about 10-55 million and you can't see an average man with that amount of money will use it to benefit himself and not the community and in some states it's the government that provide the equipment's and pay them but in Edo state its different the government want you to buy the equipment and collect the money from the people and the backup they provide to the waste managers is not helpful no laws regarding waste and locking up of a house that has refused to throw his/her waste.
2. Describe your experience with both conditions?	There is conformity between all religions when it comes to environmental sanitation, and you will see a particular area coming together to clear the streets and I have not seen any religion contradict environmental sanitation and the government is supposed to provide land for the disposing of this waste and for the people to buy the idea it should be made free before saying that they should pay.
3. From your experience what factors facilitate conforming conditions?	Religion is one of the factors and the second is social because no one wants to be seen as one who is dirty and cannot clean his/her environment or one that doesn't have a toilet to pass out waste in and the other is economic as you can see virtually everybody doesn't throw the remainder of their food unlike before when you see the traditionalist offer cows as sacrifices and it reduced to goat now to use chicken is hard, and it is affecting the production of waste, and you see people drying cassava peeling and yam peeling for future use or other use. If the waste are evacuated daily, you will see the street clean.
4. What factors drive the contradictory conditions?	People have taken the most of the work to be done as government work and due to economic reasons have not taken it upon themselves to fix the roads and many of this adjoining road the waste there most of them are biodegradable and don't decay if I was in the government shoes I would have brought an idea that the plastics should be sold instead of disposing them anyhow and the other type of waste that people in the drainage system after a while the drainage becomes blocked. If the government give a man ten streets or more and tells him if defaults the contracts will be taken away from him, he will want to do his best to keep the contract. Most of these industries and factory do not pay even government established facilities do not pay.
5. How can a resolution of the contradictory conditions be reached?	The issue is between government and the people and if the government understand the way the people are it will help them a lot. Coming to look at the market scene most people don't like

	<p>entering the market and by so doing park on the road. Is just like a pastor that feels because Catholic goes to church 6:00 am and you knowing your members cannot come that time you still put service at that hour and you are complaining that your members are leaving you so the government should do knowing the people like this communal disposing of waste. The government should provide a land for dumping of waste and you will see the people happily doing it in a communal dump. Moreover, another aspect is to track the waste to the people house. I want to give an example when you tell investors to buy trucks and employ people to pack the waste and by month-end pay a certain amount to the government where he collects 30% and this happened in Edo state for 10 years to the waste managers and collecting 30% of his gross income, and you want the street to be clean when knowing that it is the government social behaviour to take care of the street free without charges. Government should follow and know how the people live and what affects the waste managers is our roads and know that the only tar is the expressway and the rest road in Urore are terrible.</p>
--	--

Key Informant 2

PA sub-questions/Themes	Responses/Description
1. What are individual and community rituals which you and your parishioners engage in?	Just like in every human societies daily prayers and daily masses, the parishioners come together after work after school societies like the legionaries, Catholic charismatic renewal and so on. If there is a NEPA pole that fell or serious erosion problems the people gather sand to fill. The registered members are more committed.
2. Which of these rituals do you and the parishioners cherish and respect most? Apart from the church are you aware of community rituals which other residents engage in?	The mass is sacrosanct of Catholic devotion. Mass is the one we cherish most, Sunday masses and at times daily and masses at individual homes. There is the traditional worshippers, the chief priest is right there, but their adherents are quiet fewer these days. Their shrine is there, they perform rituals and sacrifices. However, again among the Christians who abuse them at the slightest opportunity, when they faced with serious challenges go to consult the traditional worshippers; like my son is in Libya and wants to cross to Europe among other life challenges, they come for prayers and also go there. However, as soon as the problems are over, they revert to what they were. So the problems have a way of drawing them back to what they condemn ordinarily.
3. Why do you and parishioners engage in ritual activities?	Keep the Sabbath day holy to fulfil the whole purpose on why God created man. The Sabbath also extend to other days.
4. Could there be a myth or belief associated with the commonly practised rituals?	The bible is the word of God, not just a myth, to worship him help the poor, gather for prayer, Eucharistic offering visit the sick, it is not a myth but what God has commanded us to do. Myth does not impose an obligation.
5. What is your impression about solid waste and its management in Urore community? Since the area is susceptible and liable to erosion with the rains fast approaching, do you see a change in attitude or the old ways of doing things will come back?	Very poor. However, with the move by the present government in Edo state where they have contracted different areas to contractors with the payment of a fee say 600 Naira monthly. Urore area is pro-erosion there used to be many moats in the past some have been covered while others have been built upon this practice has impeded the flow of water. People tend to throw things about. With the present efforts by government coming to your house to take the waste from you there will be serious improvement. With the Hausa merchant that rare cattle they produce waste a lot and channel the waste to the moat and the rains transport most of the waste, they generated to other areas. This unwholesome practice could motivate other people to pollute and degrade the environment.
6. Have any Urore community members relocated elsewhere due to the waste condition?	A lot. The man that was building this house (pointing at an completed structure) approached us to buy the property on this other side (pointing at another location through the window) the property owner relocated. Across the fence, an Hausa man approached us to buy the land because he is big man and equally relocated. There are some other parishioners and one or two others because of the squalidity of the place; the place looks unkempt. For the fear of contracting diseases as a result of the stench from the cattle market activities of cattle rearers many people would like to

	relocate even myself talking if I can have my way. If you quantifier the waste they generate is about 60% of what the refuse from the Urora community.
PEB/Waste sub-questions/themes	Response/Description
1. How and where do the residents generate and dispose of their solid waste	They generate their waste at home, stores, markets, schools. Before now they dispose indiscriminately. For now, they are paying to somebody.
2. What type of waste do they generate more and why?	One type of waste which is the prolific use rubber/plastics rubber remains rubber. It does not decompose, pure water sachet, bottled water cans, plastics used after purchase to convey items after use cannot decompose, paper and others.
3. Relate one or more experiences you have had due to indiscriminate waste disposal within Urora settlement?	When the water overflow the banks of the moat and the area is submerged the smell, stench is offensive, colour is acidic.
Contradictory/Conforming sub-questions/Themes	Response/Description
1. What are the factors/conditions that warrant the co-existence of conforming and contradictory PA and PEB?	In this case we have strong PA and poor PEB. One of the reasons and other factors erosion problems like building on the waterways, the indigenes are fewer now, the nature of Fulani herdsman used to dirty environment the nomadic lifestyles with strong PA but weak PEB. There are others like the Esans who have come to settle but see themselves as visitors that one day they will go home. Majority of the settlers are illiterates with little knowledge of hygiene.
2. Describe your experience with both situations?	Like here is mainly contradictory. Unlike where I was before like Urhonigbe they have strong PA and strong PEB as they make use of age group and kinship networks- the next door neighbour could be related to the would-be polluter and may not want to pollute the neighbourhood.
3. From your experience what factors facilitate conforming conditions?	Cooperation, age-grade social institution, cultural thing ie what you see your elders do you like to copy, peer group influence, the role of the church what the pastors preach they follow/obey.
4. What factors drive the contradictory conditions?	Well if the environment is already dirty am I the one to make it clean? When is prone to erosion.
5. How can a resolution of the contradictory conditions be reached?	The stakeholders, religious leaders, pastors, priests to come together on the need to let the people be aware of what benefits that could be derived from a healthy and clean environment.

Key informant 3

PA sub-questions/Themes	Response/Description
1. What are individual and community rituals which you and Urora community engage in?	Me and wife and children we wake up and pray and everybody to go to place of work and later come back. For community when there is dispute among members, we settle them like you saw this morning. Two we visit ourselves and also marriage bring many together so also is burial ceremonies
2. Which of these rituals you cherish/respect most? Why respect marriage most?	We respect marriage most. Because when you have children, train them, it is a thing of joy to see your children marry.
3. Why you and community engage in rituals?	We are neighbours as my village is far away. We live together happily.
4. Is it a myth or believe?	It is a thing of joy we meet this way
5. What is your impression about solid waste management? Is it proper this way? Is there any other way you dispose your refuse?	We dump it after we gather it and burn as well. It is not as we dispose in uncompleted plot/buildings, moat,
6. Has any Urora resident relocated elsewhere as a result of indiscriminate waste disposal?	Yes, one of our neighbours Frank has left due to seasonal road, erosion, flooding.
PEB/Waste sub-questions/Themes	Responses/Description

1. How and where do residents dispose their solid waste?	From the food, garri, yams and some others.
2. What type of waste do the residents generate more and why? Are there farmers in this area?	The waste are more during the maize season as one cob produces abundant waste and also from yams and cassava. Especially the staple food like <i>akpu</i> and <i>garri</i> . Only few of us are farmers, so we buy from nearby villages.
3. Relate one or more experiences you have had due to indiscriminate waste disposal within Urora settlement? Do you have any experience you like to share?	All waste smells. When it rains, everywhere smells due to the activities of the herdsmen whose ranch adjoins the neighbourhood. To find solution to the stench we resorted to block the troubled spot with laterite not too long ago.

Contradictory/Conforming sub-questions/Themes	Responses/Description
1. What are the factors/conditions that warrant the co-existence of conforming and contradictory PA and PEB? Why not 100 per cent?	We sweep every morning there is no cooperation from residents/neighbours. Even with cooperation, there is the absence of waste bins where to dispose the waste? We can organise to have waste bins.
1b. Since the roads are seasonal could that not be a factor to the less than 100 per cent relationship between PA and PEB?	Yes, the roads contribute whenever it rains the roads are not motorable and also impassable, erosion non-maintenance of roads
2. Describe your experience with both conditions?	No place with 100 per cent relationship even in GRA.
3. From your experience what factors facilitate conforming conditions?	To have them together there must be cooperation. There are age group roles and functions in the villages but cannot operate in this locality because of we not from different ethnic groups.
4. What factors drive the contradictory conditions?	We are from different locations and ethnic nationalities: Hausa, Fulani, Ibo, Yoruba, Esan, to mention but a few.
5. How can a resolution of the contradictory conditions be reached?	Cooperation, lectures on the sanitation, clear the road while the government will clear the debris. The cattle ranch is constituting a nuisance; animals and human beings cannot live together. When government allocated the place, development has not assume this dimension. The ranch/market should be relocated for the betterment of everybody.

APPENDIX 2: Purposeful Sampling

Purpose	<p>With assistance of two guides at different intervals (one resident native, the second resident non-native, both house-owners), who have spent not less than ten years at the settlement, assisted the researcher to identify and select personalities knowledgeable about waste disposal/management. The participants were given the PIS forms and also given the household socio-economic and waste management survey form to fill (see result of analysis below). With the effective use of limited resources, this exercise gave the researcher the opportunity based on the criteria of their knowledge of the phenomenon.</p> <ul style="list-style-type: none"> to select thirty participants who willingly and freely give their time to attend to the survey forms. In addition, they possess the ability to communicate experiences and opinions in an articulate and expressive manner. Based of the qualities above twenty resident-participants of this initial thirty were pencilled down for the next stage the focus group discussions. Each of the participant that participated were given consent forms to fill. The company of the guides who afforded the researcher to spot areas of interest relevant to the study; these included the area extent of the settlement, the meaning-making features such the <i>Oguaedion</i>, <i>Ogbiro</i> and some sacred grooves, the moat, and areas filled with refuse.
----------------	--

Summary of participants for the purposeful questionnaire survey

Variable/survey items		Frequency	Percentage%	Total
Gender				
iii.	Male	23	76.7	30
iv.	Female	07	23.3 100.0	
Age				
iii.	Adult (25 years and above)	30	100.0	30
iv.	Youth (25 years and below)	-	100.0	
Religious affiliation				
v.	Christianity	23	76.7	30
vi.	Cultural leader	05	16.7	
vii.	Islam	02	6.6	
viii.	Others		100.0	
Family size				
v.	Less than 2	-		30
vi.	2-5	03	10.0	
vii.	6-10	25	93.3	
viii.	10+	02	6.7 100.0	
Level of Education				
iii.	Primary	12	40.0	30
iv.	Secondary	18	60.0 100.0	
Employment				
v.	White collar	07	23.3	30
vi.	Blue collar	18	60.0	
vii.	Unemployed	04	13.3	
viii.	None/pensioner	01	3.4 100.0	
Waste generated				
iv.	Bio-waste	26	86.6	30
v.	Non-biological	04	13.4	
vi.	Don't Know	-	100.0	
Waste disposal				
iii.	Adequate	12	40.0	

Variable/survey items	Frequency	Percentage%	Total
iv. Inadequate	18	60.0 100.0	30
Attitude/impression towards disposal			
iv. Positive	07	23.3	
v. Negative	23	76.4	
vi. Don't Know	--	100.0	30

APPENDIX 3: Using handheld GPS Unit for the Fieldwork

The researcher acquired the following equipment before setting out for the fieldwork:

- A handheld global positioning systems GPS Garmin. 62 2013 version with batteries
- A Camera and video set
- A PC Laptop loaded with Google Earth software from <http://earth.google.com/>
- Sheets of paper, pencil, eraser and sharpner.

Data collection at the Field and field visits

At each location the researcher recorded the latitude and longitude and other pieces of information on a pre-formatted data collection sheet. I recreated a Microsoft Excel spreadsheet where this information were recorded using pencil; with each site have its own row, and each item on the information sheet have its own column with locations having the GPS Northings and Eastings (sample on Appendix 8a). Northings-longitude as the X-field while the Eastings represents the latitude as the Y-field. The production in map form is presented in Figure

With the use of Garmin Mapsource software followed by Track.xls. In the alternative, launch the ArcGIS 10, a blank workspace will open on the menu/Tool bar look for Add X,Y and click on this source. A dialogue box ia actuated or popped-up on this you will browse to locate the GPS coordinates saved earlier. Right lick to convert to a shapefile or Geodatabase file.

Appendix 8a: Urora GPS Map readings

No.	Name	Northings	Eastings
1	boundary of urora	6.22'04.4	5.42'23.3
	„	6.22'04.7	5.42'23.3
2	NNPC Pipe line	6.22'04.6	5.42'23.7
	„	6.22'04.6	5.42'23.8
3	Budary moat sep	6.22'03.5	5.42'20.8
	„	6.22'03.5	5.42'20.6
	„	6.22'03.4	5.42'21.1
4	osagiede-Agho R	6.22'06.5	5.42'23.6
	„	6.22'06.1	5.42'23.5
5	bondary wit Eyaen	6.22'13.8	5.42'24.7
	„	6.22'14.0	5.42'24.7
6	boundary Ok-Abj	6.22'35.2	5.41'54.6
	„	6.22'35.1	5.41'54.4
	Bon by Schl	6.22'34.9	5.41'54.0
7	Bon by Schl	6.22'31.9	5.41'49.0
	„ „ Ikponmwen	6.22'32.3	5.41'49.7
	-- --	6.22'32.6	5.41'49.9
8	Festakon Inves	6.22'29.9	5.41'46.5
	Bond with Idunw 6..22'29.2	6.22'29.2	5.51'45.2
	Ext of Owena st	6.22'29.1	5.41'44.8
9	Eweka str	6.22'33.3	5.41 '44.0
	„ „	6.22'33.0	5.41'44.1
10	Moat/pit	6.22'34.5	5.41'46.9

No.	Name	Northings	Eastings
10	Moat/Pit	3.5 METERS WIDE	
11	Road	6.22'35.3	5.41'43.4
	„ road	6.22'35.5	5.41'43.2
12	Urora wit Owina	6.22'52.9	5.41'35.4
	„ „	6.22'53.1	5.41'35.3
13	Moat with Owina	6.22'53.9	5.41'36.9
	„ „	6.22'53.7	5.41'36.8
14	Kelvin Ogie str	6.22'51.0	5.41'36.3
	„ „	6.22'50.8	5.41'36.3
15	Store=store st	6.22'49.4	5.41'37.6
	„ „	6.22'49.3	5.41'37.6
16	Peace Osagiede	6.22'48.9	5.41'37.4
	„ „	6.22'48.6	5.41'37.3
17	Adogun St	6.22'48.3	5.41'38.3
	„ „	6.22'48.3	5.41'38.2
18	Moat accr Adogun	6.22'50.0	5.41'43.0
	„ „	6.22'49.9	5.41'43.2
19	Rd B4 Sawmill	6.22'27.1	5.41'41.7
20	Bdary Bni Abj Rd	6.22'21.3	5.41'32.5
	„ „	6.22'21.1	5.41'32.2
21	Edebiri/bound Rd	6.22'23.5	5.41'37.5
	„ „	6.22'23.8	5.41'38.0
22	Enohuwa st	6.22'27.8	5.41'44.8
	„ „	6.22'28.2	5.41'45.1
23	deposited refuse	6.22'25.5	5.41'46.2
24	Old Auchi Road	6.22'14.3	5.41'49.9
	„ „	6.22'14.7	5.41'49.9
25	Ighekpe R RHS	6.22'15.2	5.41'54.2
	„ „,LHS Au rd	6.22'15.6	5.41'54.3
	.. Across Auchi rd 6.22'16.2		5.41'54.1
26	Imoisili by Cattle r	6.22'14.3	5.42'20.7
	„ „	6.22'14.5	5.42'20.4
27	Imoisili at B Wi Catt	6.22'15.0	5.42'17.9
28	Moat by Aideya Pala 6.22'12.1		5.42'15.2
	„ „ „	6.22'12.3	5.42'14.9
	„ „ „	6.22'12.7	5.42'14.6
	„ „ „	6.22'12.8	5.42'14.7
29	Aideyanba st.	6.22'12.2	5.42'15.7
	„ „	6.22'12.0	5.42'15.9

No.	Name	Northings	Eastings
30	Close	6.22'13.1	5.42'16.7
31	Behind Palace refuse	6.22'15.8	5.42'12.5
	Moat drainage	6.22'15.4	5.42'09.9
	" "	6.22'15.2	5.42'09.9
32	" "	6.22'25.5	5.42'06.1
	" "	6.22'25.3	5.42'06.1
33	Moat drainage refu	6.22'29.1	5.42'00.7
	" "	6.22'28.9	5.42'00.6
34	St.Gabriel c. Church	6.22'25.6	5.42'02.7
	" "	6.22'24.8	5.42'03.3
35	Uhunmwangho St.	6.22'26.9	5.42'00.0
36	Old Auchi Road	6.22'26.9	5.42'59.5
	" „Agbon s	6.22'22.8	5.41'58.0
37	" Across	6.22'22.7	5.41'57.9
	Agbon along Osagie	6.22'12.4	5.42'05.7
	Agbon along Osagie	6.22'12.4	5.42'05.5
38	osagiede-Agho-Ighe 6.22'11.4		5.42'58.8
	osagiede-Agho-Ighe 6.22'11.4	6.22'11.4	5.42'58.4
39	Edebiri towas d end 6.22'12.2		5.41'41.0
	" " "	6.22'12.3	5.41'41.3
40	Across old Auchi R	6.22'11.9	5.41'41.4
41	Idehen Street	6.22'09.3	5.41'41.7
	" "	6.22'09.1	5.41'41.5
42	Ehigie Street Begin	6.22'09.2	5.41'43.6
	" " "	6.22'09.1	5.41'43.8
43	Ehigie street d end 6.22'01.3		5.41'45.5
	Ehigie Street d end	6.22'01.2	5.41'45.3
44	Frm Uyigue st moat 6.21'54.6		5.41'48.8
45	Omorodion St Moat	6.21'55.3	5.41'53.3
	" " "	6.21'55.3	5.41'53.3
46	str off Erhumase	6.21'57.4	5.41'56.9
	" " "	6.21'57.5	5.41'56.9
47	Emman Agbon end	6.21'58.3	5.42'17.7
	" " "	6.21'58.2	5.42'17.8
	" " " beginni	6.22'12.2	5.42'13.3
	" " " "	6.22'12.4	5.42'13.4
48	Deeperlife along EA	6.22'05.8	5.42'14.7
	" " "	6.22'05.2	5.42'15.1
49	Iyamu Street	6.22'09.1	5.41'53.3

No.	Name	Northings	Eastings
	„ „ „	6.22'09.1	5.41'52.9
50	Idemudia Street	6.22'08.8	5.41'50.7
	„ „ „	6.22'09.0	5.41'50.8
41c	Uyigue junc. Wit Om	6.22'10.9	5.41'50.0
D	„ „ „	6.22'11.3	5.41'49.8
51	Moat near abuj exp	6.22'33.9	5.41'55.3
	„ „vin OIL	6.22'34.0	5.41'53.3
52	Agbabio Oasyan by M	6. 22'25.3	5.41'20.2
	„ „ „by Moat	6.22'25.2	5.41'20.1
53	Otamere Str	6.22'31.9	5.41'24.4
	„ „ „	6.22'32.0	5.41'24.3
	„ „ „by moat Ref	6.22'29.1	5.41'18.0
	„ „ „	6.22'29.1	5.41'18.0
54	Moat frm wealth bug	6.22'43.9	5.41'11.4
	„ „ „	6.22'43.6	5.41'11.7
55	„ „ „	6.22'42.7	5.41'11.2
	„ „ „	6.22'42.5	5.41'11.1

APPENDIX 4: Fieldnotes

Introduction	PA activities such as place of worship, marriages, burials, feasts, festivals. PEB/waste activities, sources of management and disposal determine the following; where to go? What to look at? What to ask and say? These questions are germane to experience fully another way of life and its concerns.
Objectives	<ul style="list-style-type: none"> • Understand residents' ways by becoming part of their lives, leaning to interpret and understand like the residents • Produce a record of activities as close to their occurrences as possible, which revolves around the PA, PEB/waste concerns. • Immersion in local activities and experience of residents' lives, events, routines and meanings. <p>Capture and preserve indigenous meanings and connections to they affect their well-being.</p>

Sample Fieldnote1

"This (referring to the bonfire) is what we do on a regular basis. Since our area is low-lying, we suffer two major things; 1. Refuse transported by the wind and stormwater and 2. Waterlogging. During the wet season, our homes are submerged with accompanied debris. I have personally brought ITV radio and television (an outfit sympathetic to and in close affinity with the opposition party) with the sum of fifty thousand Naira to air what we are passing through in this locality so that the authority would be aware of our problems, yet nothing was done. Since you said you are a researcher, wearing the burial cloth of our late chief, and that the *Ohen* has permitted you, if you were a government agent, we would have seized your camera and manhandled you, by so doing the government may respond adequately to our plight. Now that we are experiencing dry weather it affords the opportunity to remove the shrubs and to gather the cellophane (plastics of various colours and shapes) brought by the wind and stormwater and burn them. We do these things ourselves without assistance from the government. This road is the old Benin-Auchi road which brought development to this area and beyond, with the construction of the Benin-Abuja express, it has been allowed to degenerate". (Resident/house owner along old Auchi road, February 25, 2017).

Sample Fieldnote 2

An attractive poster conveying the image of the deceased, age, surviving relations and highlights of the programme of events adorn some major streets in the community. This action is in addition to the paid advertisement/announcement on radio and television. On approaching the residence of the deceased, a newly painted façade, canopies of different sizes and plastic chairs are some of the visible signs indicating the loss of a dear one. Among the bystanders some group of persons in twos or threes with long faces discussing the incident that took place mainly the life, experience and their encounter with the deceased. The low turnout at this time of the day suggests the following possibilities; the corpse is yet to arrive from the mortuary, it is not time to begin the programme, or other members of the family may have gone about some aspects of the funeral arrangements. A few days before this event, the extended family members under the leadership of the *Okaegbee* (the most senior male in the family lineage as the community is patrilineal) had held series of meetings and taken certain decisions. One of such arrangements is to appoint a representative of the *Okaegbee* (an immediate junior of the deceased in the family lineage), who will preside over the funeral plans and rites of the departed. It is this representative along with other lieutenants appointed by the meeting (*Iko-egbee*) chaired by the *Okaegbee* that will decide and preside over the members of the deceased off-springs that will be eligible to participate in the burial. For example, a female child of the departed who was not traditionally given out in marriage may not be allowed to participate in the funeral until she performs the marriage rites. The deceased sons-in-law and daughters-in-law are free to attend as long as they accompanied their spouses who incidentally are off-springs of the dead. In case the deceased died intestate the *Okaegbee*'s representative also preside over the sharing of assets.

The arrival of the corpse from the mortuary signal the commencement of another phase of the funeral activities which is the lying in state; with the members of the family, friends and well-wishers paying their last respects. Service of songs is organised depending on the deceased off-springs religious persuasion, which involves Bible readings, sermon, songs of praise and light refreshment. During the social wake-keep/dance, guests are entertained to a live band presentation with music rendition and food and drinks. The different associations and groups which the deceased or the children of deceased belonged tend to outdo one another with their uniform dress code, dancing steps, and accompanying their members to the dance floor with cash gifts among other items. The associations could vary from social clubs to religious and

ethnic/kinship groups with one of the objectives of rallying round members who are in need of assistance both in cash and kind.

The remains of food packs and other refreshment generated refuse at the ceremony. Another environmental hazard that caught the attention of the visitor/researcher was the noise and smoke from the stand-by generating set. Overnight or during the day as the case may be, the venue is littered with all manner of refuse from empty plastic water sachet/bottles to disposable takeaway packs. At dawn or the close of the event, the researcher witnessed the arrival of a young female with two other young lads who may have been constrained to come because of the smirk on their faces to tidy up the venue with brooms and packers as they dispose of the waste contents at *Oti*ku behind the house.

Excerpts from author's field-note February 20

2017.

APPENDIX 5: Focus group dialogues

Purpose	Focus group discussions (FGDs) appear to reveal a wealth of detailed information, deep insights because it affords participants a comfortable and natural atmosphere of talking with themselves and with strangers. In the settlement, after the purposeful sampling, the GPS readings, the key informant interviews and focus group discussions the next in line is the FGDs. For PA, PEB and waste with the accompanied consequences, the study engage the three types of focus group questions of engagement, exploration and exit (see Appendix 6a). These types of questions together with the purpose of organising a focus group discussion leads the study to craft the objectives of FGDs.
Objectives	<p>The key objectives of the discussion were as follows</p> <ul style="list-style-type: none"> • Explore the use of rituals in the life of the residents especially in PA activities, these are visible in marriages, burials, worship and in festivals. • Describe the waste disposal/management practices evident in the settlement; about source separation, reduce, reuse and recycle • Reflect on public health issues like cholera, diarrhoea, dysentery • Reflect on the drivers that motivates/sustains the contradictory or conforming conditions <p>These objectives are embedded in the format of the discussion with the participants (see Appendix 6.1).</p>
Protocol	<p>As the moderator and researcher, I was responsible to adequately cover the prepared research questions within the time given to the participants as at the time the PIS was distributed. The additional responsibility I ensured the following, neutrality on issues no matter how sensitive; praising or denigrating comments that appear to be eminently laced with nuances; agreeing or disagreeing. At the same time I employed the following strategies; smiled at shy participants as I made eye contact with them; for the dominator: I politely asked for comments from other participants as I looked at my watch.</p> <p>I thanked all present for their time and contributions at the close of the event.</p> <p>On getting home, I did the following compiled the responses, analyse and synthesise. From the start, as the questions were structured, this assignment became somewhat easy.</p>

Programme and themes for focus group discussion

Date; Saturday, February 18 2017 (first focus group) Venue: Akegbuda/Urora primary schools			
Date: Wednesday, February 22 2017		Venue: Ohen's Palace	
Time	Agenda	Moderator	Notes
9.00-9:15 am	Registration, given of pseudonyms or name tags	Researcher	Registration (align names with the track register obtained from the PIS of personalities who expressed their willingness to participate).
9:15-9:30 am	Introduction, welcome address and ground rules: they discuss while the researcher listens, cell phone on silence, not a debate, not a conflict resolution et etcetera.	Researcher	Imperative for the smooth running of the discussion
9:30-11: 00 am	Engagement, exploration and exit questions details in Appendix 6.2 .(as the researcher listen attentively with sensitivity and empathy)	Researcher	Recording by Eugene Okoeguale
11:00-11:15 am	Light refreshment; snacks and soft drinks –Departure	Researcher and assistant	

APPENDIX 5a: Table for focus group discussion 1

Table for PA activities

PA subquestions/theme	Response/description
1. What are personal rituals?	<p>A1.2 Personal rituals are personal hygiene, brush your teeth every morning. Also, you take your bath, you pray and take your breakfast those some of the personal rituals that I do in my house regularly.</p> <p>A1.1. To add to that early in the morning, we sweep round our homes and houses is something we regularly do.</p> <p>A1.3. Are those things we get ourselves involve in all the time, such as personal hygiene, prayers, you take your bath every day even the food you eat and make sure everyone eats and also the children before going to school.</p>
2. What are group rituals?	<p>A1.3. From the description is that ritual that involves not just one person but group of people for instance if you live in a street coming together every last Saturday of the month to discuss the welfare of the residents of that street brings people together. Those that cannot attend will see the need to obtain permission. It could also involve burial ceremonies, marriage among others. Where people come together, it is not done by one person and celebrate with the person or commiserate with the person depending on the circumstance or the situation.</p> <p>A1.2. Some of the group rituals involve community development and also involve environmental cleanliness where the group will decide on one day in a week or month to clean environment together. It equally involve cultural activities group rituals and bring benefit to members. This view is supported by A1.4-A1.8</p>
3. What are the differences between them?	<p>A1.1. To add to what they have said like my street have social programmes say when a member dies the collection of fine which is compulsory and who does not pay on time attracts a fine. It as simple as you do for me I do for you.</p> <p>Interjects to explain and strengthen the discussion, religious festivals, Christians, Moslems and traditional festivals (new yam, <i>Igue</i>, among others).</p> <p>A1.1. These are group rituals that side of it is sacred it makes them retain an identity. I could remember when Eguasa the chief apostle of Christ chosen church of God was alive he normally presents cow to the community to identify with them because he hails from Urora. The same with Easter and Christmas.</p> <p>A1.1. There are differences. The difference is that of an individual involves only the person while the group involves everybody.</p> <p>A1.2. The personal rituals are not compulsory the group be compulsory as fines are imposed if one defaults.</p>
4. Which is the most popular and why?	<p>A1.3. The group ritual is most popular. However, you discover that what affects an individual affects him alone, but for the group, you long for it to identify with your people time, venue and location of where the event is taken place are important factors that set group rituals apart from individual. There is a way it is communicated to you. Wherever you are, you can perform personal/individual rituals. You cannot be abroad and celebrate <i>eki kpoleki</i> in Urora unless you gather the indigenes of Urora and celebrate it in your way even at that the form and satisfaction derived are other facts that set them apart.</p> <p>A1.2. Group ritual is more popular, and it is compulsory, and you know where you belong.</p> <p>A1.1. To add to what they have said you travel long/far distance to have the real fun to identify and celebrate with your kindred. Group ritual is more popular than individual rituals.</p>
5. How often do they engage in ritual activities?	<p>A1.3. Depending on the nature of the ritual. Personal rituals are things you do almost every day, but group rituals are not done everyday. The frequency is depended upon the type of ritual for instance Christmas is not celebrated every day, it happens once a year. In the Catholic church, I attend we celebrate zonal masses once every month, i.e., twelve times a year for that zone the priest comes to celebrate mass in members house. Then again street meetings could be held once a month and depending on</p>

	<p>the exigencies of the time there could be an emergency before the next meeting in case of a member dies, and the burial happens to take place before the next meeting date. Depending on the nature, type the frequency is a function of the nature and type...</p> <p>A1.2. Individual rituals are more common as group rituals take time to plan and execute and cannot be done regularly or seasonal but occasionally</p>
6. What happens in the event of not engaging in them?	<p>A1.2. Whether personal rituals or group rituals there are effects. For example, personal rituals are things you do to satisfy your person. For example, having bathed brushing your teeth on daily basis, there are effects if you refused to clean your teeth it will decay. For group ritual it is important you keep the environment clean you cannot be excluded because air will carry those things. So there are effects if we refused keep the environment clean it affect everybody so it is compulsory for everyone to participate. The personal rituals and group rituals are meant for the betterment of the society. It is what you give to the environment that gives back to you.</p>
7. The effects on the community and society at large.	<p>A1.1. It has so many effects, if the environment is untidy, there are lot refuse and dirty things around also in our homes and by extension it will affect the community in which we live. The group one It will lead to break down of some of our values within the system if we fail to observe them.</p> <p>A1.2. It will bring disunity and rancour in the community.</p> <p>A1.3. The effects of not engaging in them could be social, economic and environmental depending on the type of ritual we are looking at. Every member is expected to come to keep the environment clean, and if someone defaults without reasonable excuse, it could lead to others having lukewarm attitude as well and eventually we have a filthy environment. Like I said before, it could also be social, if an executive member of the locality say an <i>Odionwere</i> and he defaults the street will come together and discipline him. This they one of the following or that may be by expelling from your duties or ask you to step down, it also affect you socially when you do not perform your duties. Economically depending on the nature, if there are benefit as an executive member defaulting will make him lose the benefits, and that affect you economically.</p>
8. How comfortable could they be living daily with uncontrolled waste?- does it affect them adversely or it is a nagging problem in the background?	<p>A1.2. I want to give an example of Uyiedo dumpsite, an unaccredited dumpsite passing there stinks so when we started evacuating the waste we had to bring a bulldozer to pack it before bringing sand to cover it that is what can be done to an environment when you don't keep the environment clean also there was this problem of abattoir when the wind blows the stench comes out so the community came together and took the case to court, if it was an environment where nobody cared the stench would be established, and nobody would be comfortable. If the community refuse to carry out group rituals, it would adversely affect the environment and invariably affect the individual, because what you give the environment is what you will get back.</p> <p>A1.1. Adding to what A1.2 said, it can lead to an epidemic for example in Haiti some years ago there were some peacekeepers that came from another country after some time there was an outbreak of cholera tracing it back it was the foreigners that came for the peace keeping mission because they were not hygienic in their camp. So when group rituals are neglected, it becomes an environmental problem and health problem also.</p>
9. Describe your experience with strong stench/offensive odour and how does it make you feel?	<p>A1.1. According to what my brother is saying I was not here then I used to come from the town when the direction of the wind is towards my dwelling the stench is always unbearable, that's the only way I can describe it my wife have bought different air fresheners although my house was far from the place when the wind blows towards my direction breathing becomes a problem we had to lock all the windows it was very unbearable and uncomfortable. It is better somebody to experience it than begin to describe it.</p>

APPENDIX 5b: Table for focus group discussion 2

for PA activities

PA subquestions/theme	Response/description
1. What are the personal rituals? After some explanations on what rituals entails	<p>C1.5. Personally, ritual performances when I woke up in the morning, my first thing is to thank God for making me to stand up to see the beginning of that day and also when I am about to go to bed to thank God for leading me through. Other way I have my ancestors I always serve and worship, the <i>Okhuaihe</i> deity and the <i>edion</i> and we have festival every year for the <i>Okhuaihe</i>. These are still my rituals; I will stopped there so far.</p> <p>C1.4. There is no community whose members do not perform sacrifices, going to church. I have a deity I worship until date I still worship it. Although I still do attend church on the other hand because it is what is obtains in society that you meet that you align with. If you now say it is only you attend you are bound to lose certain benefits and privileges within the community. There is no one single way to serve God, but the numerous churches in existence makes one to wonder that the churches are established for pecuniary reasons, as the proceeds from tithes and offerings are used by the pastor to feed and maintain his family. These persons pride themselves to be closer to God who has seen God? If not the dead in their fellowship in heaven. Otherwise, no one had seen God and is still alive. Any good thing coming to the community should be supported by all and sundry.</p> <p>After some explanations as to what constitute rituals; like prayers and in the course of prayers the use of native chalk and salt as offerings to the <i>Okhuaihe</i> deity and the ancestors, the chief priest contributed the following;</p> <p>C1.1. First thing I do on daily basis in the mornings is to pray for myself, wife, children and the community. I brush my teeth, take my bath, and wear my clothes ready to leave the house for the day for outings. However, the so-called people who profess to be closer to God are the ones that have contaminated and polluted the environment completely. If you attend church whatever you do face it squarely and never to cast aspersions on others, who may not belong to the same faith as yourself. The in "thing" these days is whoever has little money builds a church preaches against the traditional African religionists who he patronises at night for an increased in congregation. What an irony. Before now we have three to four churches, however, in Uroora alone the churches are about a hundred in number. Why the sudden increment? If not for monetary/pecuniary reasons. However, the Moslems have one commonplace where they worship. Unlike the Christians Jehovah.</p>
2. What are group rituals?	<p>C1.5. Group rituals performed in Uroora community, the first one is the <i>Okhuaihe</i>. It is a group rituals which comprises five communities (Uroora, Evbuomodu, Idumwuowina) of which Uroora is the headquarters people come together to perform the annual rituals. The <i>Edion</i> where we all gather to give food to the ancestors, as a sign of love among the indigenes. These are some of the group rituals performed in this community.</p> <p>C1.2. It is better we are one in all that we do. With this unity and bond, a sense of purpose is achieved. The unity in worship.</p> <p>C1.4. It is the community you live and dwell that you guide jealously. With these fact comes love and unity that translate to sympathy and empathy among the community members who sees each other as one. I grew up to know that our ancestors has long started this love of one another as the venue of our meeting today plays host to that occasion. Once every year this occasion is celebrated. With this unity and sense of purpose, we always look out for the interest and welfare of one another.</p>

<p>3. What are the differences between personal rituals and group rituals?</p> <p>4. Which is the most popular and why?</p>	<p>C1.5. None is not important whether personal or group rituals. The ritual you perform in your house is number one before you now come to the group which is the general. The only difference I see is that wherever the majority gather carries the day and wins the best. I believe that that group one is a bit different from the personal.</p> <p>C1.5. Group rituals is the most popular because you see different people come together and perform. Unlike what you do privately and individually.</p> <p>C1.4. To support what my brother has said, for example, the aspect of food, if one person cooks and eat there is no way s/he will be satisfied and be contented. However, when they are two or more persons gathered the food becomes more appealing and attractive for consumption. So group rituals is more important/popular than individual. The group ritual is more attractive than individual as the group ritual command respect and popularity.</p>
<p>5. How often do you engage in ritual activities?</p>	<p>C1.5. That everybody comes together annually. However, the one for the ancestors can be once in two weeks can be once in a month, it could as well be every day there we pray for the community, it can be three days, a week or once a month. The one of <i>Okhuaihe</i> is annually.</p>
<p>6. How often is <i>Ikpoleki</i> festival done and why do it?</p>	<p>C1.5. <i>Ikpoleki</i> started during the time of Oba Ewuare, who is the owner of the shrine <i>Okhuaihe</i> is the shrine whenever it is started we call it the <i>Ikpoleki</i> festival. All sons and daughters of the community both home and abroad gather to celebrate the <i>Ikpoleki</i> festival to receive their blessings. It is an occasion to request from the ancestors supplications among other things. This is why you see us progressing.</p> <p>C1.3. For your understanding, <i>Ikpoleki</i> is not just going to the market and sweep. The meaning of <i>Ikpoleki</i> is that whatever the enemy may have planned in the lives of the inhabitants, all the evildoers, the evil things in the land will be swept out by the gods. This sweeping out is the <i>Ikpoleki</i>. Whatever maybe troubles, diseases, sicknesses, and worries of the people are swept away.</p>
<p>7. What happens in the effect of not engaging in ritual activities?</p>	<p>C1.5. Let me make an example, Ahor community have the rituals they perform every year, but the failure by the community to keep performing these rituals have led to a series of upheavals in the land to the extent they kill themselves. No settlement (peace) in that community as everyone is on their own, no peace in the community because they have stopped what their forefathers have instituted to sanitise the community. That group ritual must be performed every year it is through the ritual you are expected to receive or not to receive your blessings. Even you are not opportune to come the ritual you perform is the saying of certain words into a substance made of native chalk and salt and blow it to the atmosphere. There is effect if you say you are not going to do it.</p>
<p>Apart from the effect of no peace like Ahor community, could there be sanctions on the defaulter(s)?</p>	<p>C1.5. There are no sanctions; you will not be happy, knowing that what you did is wrong. If you do something good your mind will be sweet, your conscience is supposed to judge you that what you have done was wrong. You will not be happy coming home.</p> <p>C1.3. Let me go in a little by saying I am not doing it. It happens in three ways to the whole community not to engage in it say for one year, it is likely there is a message/directive from the palace of the Oba of Benin to suspend such rituals. It will not have any effect because it is a shrine from the palace. Personally or individually you will move or come when the time is close to perform the ritual, you will not be forced something in you will keep troubling you because that shrine gathers it is children all over the world for the festival. As a freeborn of this community, you will not be left out you will certainly come. This is the cooperation we have because our shrine unites all the community members together.</p>
<p>8. How comfortable could they be living with uncontrolled waste?</p>	<p>C1.3. In the English parable or in the Bible it is said that cleanliness is next to godliness. No one is comfortable in dirt, so I can say if we have the mind of maintaining our compound we must also have the mind to</p>

	<p>maintain the rest environment by coping or cooperating with rest landlords and tenants in our area. It will not be comfortable to see that only your place is neat, while others are rough there is never a time you will be comfortable. For that, I do not think we are comfortable. For me I am not comfortable in it.</p> <p>Other participants agreed with the submissions of the last speaker.</p>
9. Describe your experience with strong stench/offensive odour how does it make you feel?	<p>C1.5. When one experience such thing, one can easily fall sick, and you will not be healthy, you can never be healthy, and you will not be comfortable with that smell. Until you vacate it or tell the people concerned to come and move those things away before you will be comfortable. The people living around can never be sound until they evacuate the smelling refuse away. So one is not comfortable with that smell. So one is not comfortable with dirt.</p> <p>C1.3. We thank God for this community I can say we are trying: regarding maintaining the pollution of the environment or so. However, you can see if there is anyone in the habit of pollution all those things causes sickness as my brother has said C1.5, so it not a thing that is good. It is only by coping with them we cannot ignore it like say maybe it is not my area as it can affect everywhere. If you can receive breeze from it, it can affect the whole community. With cooperation, we can succeed that, but it is not a good thing we have anything pollution.</p> <p>C1.4. I want to contribute to what my fellow member have been saying since in the real sense if were somebody is living is not clean it will bring sickness to that area. So one cannot say my area is clean that he will not be concerned about other areas. Every month we do sanitation in this our community. Every month when the time is at hand nobody will come and tell you to keep you compound clean. If you see your neighbour maintaining his own, your mind will tell you to do same with yours. That is why you see most of this area is neat. Like this place now (pointing at a dilapidated structure which have seen better days) is a question of the owner are not staying there. If people in the vicinity cut the grass constantly the place will be very neat. Like Aduwawa now before you see a place that is neat as these it is difficult, dirty like those Hausa people will make rubbish of everything. So it is good where you are staying you make it look neat.</p>

Focus group 1 PEB/waste activities		
PEB/Waste themes	sub-questions/	Responses and Description
1. What kind of a waste do you generate more than others and why?		<p>A1.2. The community we are now being an agrarian community, so it produces agricultural waste are more generated than other industrial waste because there are no factories in this community, so industrial waste are pure cellophane water (in sachet), bottled water canned soft drinks, sardines other waste are biodegradable waste.</p> <p>A1.1., A1.3. A1.4-A1.8 and B1.1 concurred. That A1.2 was speaking authoritatively because waste management is his primary job. A1.1 the waste that is generated around my compound are more of bio-degradable there are times I separate the waste in different categories like tin tomatoes (metals) and call scavengers because it is useful to them. However, most times I do not separate pack all together and dispose.</p>
Do you all agree?		
2. Where and how do they dispose of the waste?		<p>A1.1. There are some places covered by the waste managers, and there are some part of the community that are not covered because of the terrain (seasonal roads), so it becomes difficult for the waste managers to access those people. So they dispose their waste early in the morning on unauthorised places, but for me, A1.1 the waste managers covers my compound I have a dump in my compound, so they come once or twice in a month to evacuate it. Twice a month was the minimum standard the government gave, but it has become the maximum standard</p> <p>A1.3. (Cuts in) which is actually inadequate you have heard what my friend here said areas that are not accessible due to bad road and other reasons and people that live in such areas cannot afford to leave their waste in their houses they must find a way to dispose of these wastes often some undeveloped places dispose theirs in moats and places supposed to be for erosion control, tourist centres have become a site where people commonly and freely to dump their waste.</p>

3. Have there been cases of an epidemic of cholera, typhoid fever, bacillary dysenteries, or diarrhoea?	A1.1. We thank God that in this community we have not had epidemic. The one that is common is malaria fever, again and again, let me believe from our interaction I now recall a discussion I had with a renowned medical practitioner who said by UN standard that some pathogens are tolerable by the body and may not cause harm. However, from our interaction, I am beginning to suspect that the cause of typhoid/malaria fever can be related to our dirty and filthy environment.
---	--

Focus group 2 PEB/waste activities	
PEB/Waste sub-questions/ themes	Responses/Description
1. What kind of waste do you generate more than others and why?	C1.3. What mostly is those cellophane (plastic) from pure water, rubber bags. So to even burn those things it takes you time the place I even park my own sometimes I dig ground and put it. Sometimes I put them inside my car and take it to the dustbin (dump site) at Ikhueni. You cannot continue to bury it for years, so I gather them in sack bags put them in my car because I am driver put inside my motor and take it down there. Sometimes, they will be harassing me why are you packing dirt to this place, but the most import thing is that the waste I have in my area is cellophane.
Take notice we are asking why?	We thank God in this our modern life we have this pure water and plastics, all those takeaway that they use for wrapping all those burns make the waste to be many under 5 minutes because of stores (interjection from me you have more stores and is close to the school, so you receive more patronage from pupils and teachers) yes. So that is the reason you generate more of plastics than any other wastes. C1.4. In the real sense, this cellophane matter is big problem is something even though you put fire it cannot burn the way it is supposed to burn. See this place (pointing at the foreground of the meeting area, for example, they swept this area this morning before evening the place will be full of this rubbish we are talking about. So if one does not have the place to burn these things always bring dirtiness to that area. If you have where can drop them after sweeping that will make the place look fine.
2. Where and how do you dispose of your waste?	C1.4. Like now in my own case, like my house, there is not like children buying biscuits, pure water and other things, that after eating they drop it anyhow. However, the dirt that is much I gather them and put fire, I cannot be digging ground regularly to bury them. Maybe 2-3 years you will come back to where have buried before if you burn them, it will lessen the amount of rubbish. In most cases, I burn my own. C1.5. Normally the accumulated dirt comes from cellophane. This is because when you are buying <i>akara</i> , it is cellophane. If you are buying oil from the market it is cellophane, buying anything from the store it is cellophane pure water it is cellophane. So you see the one that is much is that cellophane. So there is no house no compound that is free. Cellophane come from Aduwawa to your compound. So what we normally do there are waste managers that come to pick dirt of which we pay monthly. Even when gather them, we have to put them dip inside the bag otherwise breeze will blow them. So we package them very well so that when they come, they will collect them.
3. Have there been cases of epidemic cholera, typhoid fever, bacillary dysentery, or diarrhoea as a result of waste you generate?	C1.5. We normally experience fever malaria that of diarrhoea this what I do not think of. In most cases people normally go for treatment is fever, that high fever or typhoid fever. We have not had cases of cholera or others. What we normally experience is fever malaria, all these body pains these are fever causes. C1.3. To support my brother, C1.5. That is apart from those malaria and typhoid, the rest ones really we have not experience them. The cause of the malaria is not dirt alone the flood mostly, we do not experience malaria during dry season but during rainy season because of flood. This time of dry season we always step outside we do not even care but during rainy season, it always difficult to step out of your room nor sleep without the mosquito net. That is when we even experience fever and typhoid. However, the rest we never experience it.

Table for focus group 1 conforming/contradictory activities

PEB subquestions/themes	Responses and description
<p>1. What motivates the co-existence of strong place attachment with weak household solid waste management practices?</p> <p>Why we allow the street to be dirty?</p>	<p>A1.2. The strong motivation I will classify into three major areas: social, economic and religious. Social aspect since I know that I belonged to a community. If I am going to marry out my child, the community will come around me because I know what to expect as my people will gather around me. That will make me to be committed if I decide otherwise I will be left out/abandon. When we talk of religion, you know the way a Moslem will contribute/react is different from the way the Christian will contribute/react to situations. When we talk of cultural aspect when you are in a group of diverse culture with time you come up with a blend of culture within that environment. What makes these things to be weak (1) is lack of education and information. We do not have a full knowledge of what health involving everybody is all about for example airborne diseases can take the problem anywhere. It is when you are aware of a thing that you know the full implication of that thing. There is the very wrong orientation. If you do not, you will not care and put on that I do not care attitude. We look at an advocacy to involve everybody to look at the importance. We can be inactive because you are not aware. With your knowledge, you are concerned about the cause(s) and would want to find solution.</p>
<p>2. What are the motivating factors, could it be socio-economic or religious or all the factors?</p>	<p>A1.3. What binds people why people agree to come together are normally social and economic reasons. Coming to the waste management aspect, I would say it is negligence on the part of government. Until very recently government was not forthcoming, it was not doing what was expected of it. For instance, if you go to individual compound they are clean when you gather waste you must dispose. How do you dispose? In designated areas. Are there designated areas? The waste managers that are there now are they adequate? When you made mention of minimum number of times to collect waste which is twice a month it is grossly inadequate. For instance, if you generate waste in my area where I live we generate waste on daily basis, it is even against what I learnt when I was growing up you do not keep your waste at home but keep it elsewhere. Because it would be too bad to allow it to accumulate rather you look for faraway place and dispose. Assuming waste managers where coming around there would not have been a problem. I went through the law governing their operations; it is even an offence for you not to pay for waste. Will you now blame me not to have a waste manager attached to my area? Will you blame me for not knowing him or for him not to come to my place? Agreed that we have inaccessible roads and all that but since the beginning of the year it only rained twice or thrice and the roads have been good they did not make use of the opportunity. Is not even too bad for now. I can tell you since I move into that area for the past seven years, I have not seen one waste manager none have even come to do enumeration and all that. None has visited us you cannot imagine if I have been accumulating waste for the past seven years, of course, you know what that means you must help myself you must help yourself. The reason that people do not come together and look into how it affects them is the fact that government is not living up to its responsibility.</p> <p>A1.1. That is a strong community relationship and poor waste management disposal practise. To add to what my colleague has said, like in this part of the world is government that control the ozone layer, they are supposed to assist the waste managers with lighter vehicles that the bigger ones cannot get to at least to a point like the transfer stations. The government is supposed to provide soft loans to the waste managers where they pay little by little. Coming to the waste management aspect, government is not ready they looking at the economic benefit. Take for instance go to Ikhueniro here just a stone thrown as if you are going to Sapele road the dumpsite is there, I am sorry for those people that are living around that area it is a built-up area now, I believe when it was acquired the site was isolated, but now it is different as the area is over-built. If want to follow the environmental standards the dumpsite is supposed to be relocated by now. If you get, there is no single management facility no incinerator facility nothing to manage the waste even the bio-degradable, the cellophane (plastic) nothing, the metal nothing at all unless a pay-loader to shift the waste further. No facility to manage the waste no separator. Let us come closer are there waste bins? Maybe there are but are invisible to me (they are not there chorused A1.3.). It is a social responsibility by government. All these my brothers the government brought them there to save</p>

	<p>their face they are doing what government could not do. A1.3 reiterates this fact.</p> <p>A1.2. We all agree all over the world not just Nigeria that government cannot do everything government can create the enabling environment. As a matter of fact, as I was growing up in the villages, we have what is called <i>Aziku</i>. It is just because of urbanisation, and we are not doing what we are supposed to be doing. If this Uroora community was one community of his own, but here we have diverse people the centre can no longer holds. In the villages we have what is called <i>Otiku</i>, this is where we are going to put our dirty the villagers disciplined themselves.</p> <p>Interjection what you are saying the indigenes have become minority. Okay. If the indigenes were more there is supposed to be cultural motivation to take care of waste. If the indigenes are now in the minority, the centre can no longer hold. For me I would say I identify with a community, I will try my possible best to see that things are working well. I call the place mine own because I have no other A1. 3. You made a point just now like the <i>Aziku</i> A1.2. Made mention of.</p> <p>A1.2. There is no way government can take charge of refuse solely. Take for example, if the roof is removed and place is eroded if urgent action is not taken it would gradually degenerate into gully. Who will be affected the people why wait for government? Government can only say look o plant trees let the place be clean and make sure there are gutters which can be locally made (through self- help) to prevent the erosion from widening. We are in an urbanisation the rate of industrial explosion/development is all over the world there is population explosion. The way you people are talking now both the manager the ledger will be taken to court. I want you people to know not because I am involved there are houses around here who refused to key in with the excuse that they do not generate waste. Is there any household that do not produce waste? Moreover, dump the waste generate discriminately, and yet you blame government is not everything you blame government for. What I am saying is that is this lack of knowledge, and they do not know the implication and effect on your children, not just the society that will control you. However, God have it is not possible that government does everything, it is not because I am a waste manager, because I have been a civil servant I do know how government operate, it is not possible that government do everything. So if we want to blame government nothing will be done because we expect government to come and clean the house for us.</p> <p>A1.3. I hold a contrary view to that sir, the special arrangement, in fact the provision of neighbourhood infrastructural facilities are actually the responsibility of government because government has failed woefully that is why these things are there if there were proper planning practices breaking an area the way it ought to be broken by professionals because he understands what is expected of him he will be able to set aside areas as dumpsites, others as transfer stations, if your house is far from the designated dumpsites are you getting it. If the Ikhueniro dumpsite we are talking about government would have stopped development from encroaching on the site. Look at our airports there are other areas you do not built close to. Is just that government on its part is not serious either the people occupying these offices lack knowledge of the things we are talking about. Otherwise when that dumpsite was sited earlier houses were not close to it. If government understands the implications, they would have stopped development from coming so close. To engage in modern-day practices of managing there are no incinerators nothing. We continue to call on government there are things you provide for yourselves, and there are others you cannot.</p>
3. Could some of the participants be benefiting from the prevailing circumstances?	<p>A1.1. I can say yes they are benefiting in that they are not paying any bills to the waste managers. However, it is counter-productive they will be spending money for sickness that should not have infected them in the first place that is if good environmental practices were being observed.</p> <p>A1.3. Yes, why I would also support him is the fact that waste, when they are thrown away anyhow, involves the activities of scavengers people who look for metals sell to intermediaries who in turn sells to the company for the production of materials they make money from it. The scavengers live around us that pick metals.</p>
4. Is it possible that some of them are involved in waste management practices that	

include reduce, reuse, recycling and composting?	<p>A1.1. I am not aware of such things. It is only at a time the psychiatric hospital at Uselu were involved in the recycling of plastic materials. Say the one in Urora community I am not aware of it.</p> <p>Waste from our kitchen is there a way we compost them to now make our crops produce better than ever before? Alternatively, the peelings from the yams, plantain and cassava we now feed them to our goats, pigs or whatever is there anything like that?</p> <p>A1.3. Yes, I know somebody who is a farmer, and another person who brings in cassava peelings are not thrown away the man comes there almost on a regular basis to remove these things from his farm to enable him feed his pigs. That is one it may not be in massive proportion. The two, like I said before the activities of these scavengers whether consciously or unconsciously if throw the bag of refuse away they will try to separate and remove the ones that is important to them and forget about the rest. So somehow the waste do not remain the way they were thrown away. Are you getting what I am saying, so these scavengers go to remove the metals the tin tomatoes cups, the sardine cups, the geisha cups and all that? Which they eventually sell to their big agents who in turn sells to the companies. Are you getting it unless you said that is too small or infinitesimal to be captured otherwise consciously or unconsciously the thing is there.</p> <p>A1.1. Let me come in again there is no conscious efforts.</p>
5. What sustains the contradictory/conforming situations?	<p>A1.2. I said earlier it our level of understanding health is general they need more sensitisation. What is happening in this country it is a question of one step forward two steps backwards, in my days they taught us washing of hands in schools. We have a stand with a bowl of water wash our hands during break and dry them. Moreover, the teacher wash his or her hands filled with chalk and dry with towel. What has happened they have disappeared. What I am trying to say the level of our health education is very poor, we take so many things for granted. That is the basic attitude towards health generally whether personal or general. We need a re-orientation how can take us back to school again as if we do not know it before.</p>
6. Do your belief systems permit or allow for the contradictory/conforming situations?	<p>The general response is no as cleanliness is next to godliness</p>
7. Given the factors/drivers, how do we reach an understanding to guide for a better waste management/disposal initiative?	<p>A1.1. When talk of understanding we need knowledge first before you talk of understanding so there is need for public education of the benefits of good environmental practices.</p> <p>A1.2. It will take the efforts of both the government and the people to come together in understanding the role each play to bring about the dissemination of health information and observance to environmental and personal health. Now if you look at our community do not you think there are key stakeholders. What I mean by this is that in the community there are subgroups, there are some groupings, based on ethnic-based on religious. These people have some commanding roles even to their members. Stakeholders in the sense that once in a while they organise meetings through such avenues do I say inform, educate our people in these aspects. Do you see it from that perspective?</p> <p>A1.1. Some years ago, there was a part of our street that was being eroded and not built-up, so people were throwing all kinds of dirt there. It was reported to us in the street meeting, so we took it upon ourselves to clear the place. Moreover, made a law that nobody should put refuse there again and the people that were very close so we asked the <i>Okaiduhunmwun</i> of that street to warn his people that we suspect that they could be the ones polluting the area. That any waste we see there again we hold that street responsible. Moreover, that help us to manage the situation. What I am trying to say is that I believe we can go through the <i>Okaiduhunmwun</i>, the <i>Odionweres</i> we can be able to arrest the situation. First of all, through education, we should be able to arrest the situation.</p> <p>A1.3. To sum it up there is need for public enlightenment, there is need of enactment of stringent rules, laws and proper enforcement. Then there should also be a kind of incentives if you do this or if this area appears to be an area</p>

	<p>that is tidy there will be an incentive to motivate the inhabitants to do more. The positive aspect of it will be sustained.</p> <p>A1.1. I think to support what he has said at the time of Uko Osifo, that time there was this competition among the various local government areas and there were prizes attached the best local government is awarded prizes. I think we should go back to that. The local government should have an education department because they are the closest to the people create awareness among the people and the benefits of living in a good and tidy environment. Moreover, the people they can use if it is the <i>Ohen, Enigles, Okaiduhunmwun</i> they can tell the person that they coming to the area on a specific date he should be able to mobilise his people.</p>
Table for focus group 2 contradictory/conforming activities	
Contradictory/conforming subquestions/themes	Responses/Description
1. What motivates the co-existence of strong place attachment with weak household solid waste management?	C1.4. The reason is that to my understanding the way I observe it assuming we have a special place where to put the dirt; I do not think somebody will sweep now if your compound is dirty and throw it anyhow. Much of what you see are where people hardly stay. If there were a place being prepared for it, it will not be like that. If it does happen, offenders will be severely dealt with by law.
2. What sustains this contradictory/conforming conditions?	<p>C1.5. Personally to it is important that the waste managers come, everywhere is important if we now discovered that in some areas they are not practising it they do not want them to come and carry their dirt, what I believe is that is now left with the people in charge because I am aware that they have taken some persons to court I see no reason why they should not give them dirt when they are available in the community. It is important for everybody to be given them dirt and be paying the 600 Naira every month.</p> <p>C1.3. <u>I can hear story say for this type of a thing to be 100 percent at least we only pray to God to help us to get a person from this community to represent us in the waste management without that it will be very difficult for to see that we put together gathering our waste in the waste disposal. Without that we still have our own at the backyard. some will have their outside while some will still be paying for disposal.</u> All I am trying to say is that in our community what will be useful maybe our community we look for two or three people to announce that this what we do not want to have dustbins in the front or back and with the street head I think we can conquer everything.</p>
3. What are the motivating factors could it socio-cultural, religious, economic or all the factors?	The activities of cultural, religious enhance/encourages PEB (as agreed by all present).
4. Could some of the participants be benefiting from the prevailing circumstances?	C1.5. Normally people will be benefiting from it as you see this canned Coke, canned beer, maybe because we have been sitting here since. There are people that do pick them to carry them away and make their money. Like all these cellophane now people may soon come for them look for some numbers that they will use in winning from the company. That is how they benefit from it. It is not on a large scale but a small scale.
5. Is it possible that some of them are involved in waste management practices like reduce, reuse, recycle and compost?	The response is an emphatic no as all the waste are not separated
6. Do your belief system permit/allow for conforming or contradictory situations?	Earlier it was agreed that the belief system allows for conforming conditions.
7. Given the factors /drivers, how do we reach an understanding of waste management disposal initiative?	C1.3. About the stakeholders we start from somewhere at least we have the heads of the communities by inviting the street heads you know, I said so earlier summons them to tell them what they should do/want. They should circulate the information after they gather themselves and are informed of what the head of the community said. If this is done, it makes it easy for us

APPENDIX 6a: Heads of households and families interview 1

PA sub-questions/theme	Responses/Description
1. What are commonly shared rituals at family and community levels?	If your talk of commonly shared rituals at both family and communities we are looking at 1, Prayers you discovered that there is no household were, prayers are not said irrespective of their religious affiliations for Christians you wake up in the morning you gather your family members. Then you pray commit the day into God's hands. For traditional religious adherence, they also pray they wake up in the morning to pray because they have the strong belief that God owns the day and orders everything, so they commit the day into God's hands through prayers before stepping out. I would say prayers is one ritual that is very common with families. As for community rituals we are looking at those things that <u>normally</u> bring all of us together. For instance if you belong to a particular street, the welfare of those living on that street should be the concern of everybody and to be able to evolve or come with programmes that will be of benefit to everybody there is need to <u>come</u> together through regular meetings and what have you. You know when somebody dies on a street for instance, or <u>somebody</u> is bereaved the street members come together to organise and task themselves to see how they can attend the ceremony so on and so forth. Many other things bring people together in a community.
2. Describe a particular ritual of your choice?	Well, the one I like so much who I am part of on a daily basis is prayers. Once we wake up in the morning, we must pray before we do any other thing. So prayers particularly.
3. What benefits are derivable from this occasion?	Wonderful a lot of benefit, it has even become that if you do not do it you fill empty that you have not armed yourself for the day, having prayed that you are protected and have that sense of God's guidance you fill that God is there with you always with you in anything you are doing. There is that confidence that you have that you derive from such exercise. Any day you do not do it you feel you have done something terrible to yourself once you do it you leave the house with confidence believing that God is in charge of everything that is going to place that day. So there is that satisfaction, confidence of yourself that God is in charge. That you have done what you are supposed to do with the feeling that you are highly protected and fulfilled as well.
4. How significant are these activities?	The significance of prayers in the life of a man cannot be overemphasised. It is like the relationship between an engine and the fuel to run that engine. Prayers in the life a man is to me personally what fuel means to an engine that is what prayers mean to me. The day I do not pray, I fill so empty, I feel so unsecured, I feel unfulfilled that I have not started the day well. It has a way of affecting me throughout the day. Any little thing that happens my mind would think that could make it because of it. However, when you pray before living the house, you accept everything with faith anything that happens to you would believe that God is aware of it that God understands it perhaps that is what he needs from me that is why it is happening like this. The negative aspect of what is happening to you because you have this belief that God is aware that if He allows it to happen there is something he wants you to learn from it. Alternatively, something He wants you to do that He has just started by introducing things of that nature that are that. The significance of prayers in the life of a man like I said before is not something you can exhaustively talk about.
5. Why engage in them, if not what happens?	When I was trying to explain how important prayers is to me, I remember I said if I do not do I do not feel fulfilled, I do not feel secured and all that. The truth here is the reason why a man prays is actually because of the things he, the benefits he derived from such exercise. Moreover, so if does not engage in them, such benefits are not just there.
6. With the aid of picture taken in an earlier event relieve/describe your experience?	Yes in one word I would say we felt fulfilled because we were eager to have it done so when we succeeded in achieving it, we felt fulfilled we were very very happy. Because the way these things are is like something handed down to us, you would not want to be the one who is not able to pass it on. For instance, my siblings all were baptised as infants and then

	<p>when I started having our children we also saw the need to baptise them as infants. Apart from the fact that we needed to do what was handed down to us by our parents, starting a child on this part of religion as making the child know that this what we believe in has a way of moulding the child, it will be very difficult for this child irrespective of all the distractions and what have you to actually turn her back on the faith because it is something. She cannot really has to think of it. Because as a result of this early initiation she grows up to appreciate that this what is acceptable or what my people have come to accept what they believe in and what they do. So it will be very difficult to for her to be the only one who will not remain in it. Somehow it has a way of moulding the child moulding her character to be a better person in the future and all that.</p>
When we look at what you said it appears you were thinking about it what we are interested in is to describe what you felt that day?	<p>It was a beautiful ceremony. We were not alone other families also have their children baptised. In a nutshell, it was a beautiful ceremony everyone; there was happy and fulfilled.</p>
7. Are you comfortable living in this area?	<p>I am not comfortable been that you are not the only one badly affected, what do you do? If others can cope apart from the light (electricity) thing, the road thing, the waste disposal too apart from the area you are looking at we do not have a waste manager covering this area. So we know how to dispose of our waste, and at times you wake up in the morning, for instance, this next compound close to me I normally clear the sides because of rodents and reptiles. I woke up one morning, to meet that somebody you know has thrown whatever there, of course, it is somebody in this area. It is because he or she did not know where to put his refuse, he decided to put it here. Until I have to clear it extensively so that if you are going to that, it would not be too close to my own house. What I used to do was a kind of path, but now I have to make it more extensive and wider so that if that person refuses to stop it would not be so close because of the smell and the nuisance and what have you.</p>

PEB/waste sub-questions	
PEB/waste sub-questions/theme	Responses/Description/experience
1. What type of waste do you generate?	<p>Taking a look at what we have done for the past five days, it appears we generate more of bio-degradable, then putrescible.</p> <p>Like I said unless you have come to talk about segregation/source separation, other than that we group everything we generate under bio-degradable, if you say biodegradable you will be correct. Because the leftover from food and all that the meal in its original state I will say they are the same. If you prepare yam for instance and you have leftover, that leftover now becomes putrescible.</p> <p>(Cuts in) The food items that goes sour in less than 24 hours like tomatoes or soup you did not warm among others. The yams you peeled the bark so also is the plantain, cassava all these are bio-degradable. Moreover, a host of others even cocoyam and water yam they are bio-degradable. However, that decomposes quickly and have an offensive odour in 24 hours that is putrescible.</p>
2. Having been shadowed for five days apply Appendix 7c	<p>This aspect has been taken care of with the table we generated through our painstaking records.</p>
3. What waste management habit do you prefer?	<p>What I think is better when you separate. Except it is something that can be sustained. It is a little bit tasking.</p> <p>Could it be that we are not used to this source separation that makes it tasking? Secondly, there could be no benefits derived from the labour?</p> <p>I would say yes having taken pains to separate this waste and with the present arrangement, they all have a final destination. So what is the need until there is an improved way of disposing of/managing waste as it were, I will say that the thing will remain like this. If there were some incentives attached to this separation, of course, we will be encouraged to do so separation and when it is something you constantly do it becomes part of you that you no longer fill it. Since this is not the practise the old practise trying to deviate from it without any benefits honestly speaking to me it is a waste of time and resources.</p>

4. Describe your experience with public health issues like cholera, typhoid fever, bacillary dysentery or diarrhoea?	I will say we are lucky because there have not been any outbreak of an epidemic. However, as individuals, we break down at times from malaria fever due to mosquito bites. This is because the area is not too clean otherwise we are not supposed to have mosquitoes which are the causes of malaria. As for cholera and other things you mentioned, I will say we are somehow lucky apart from malaria fever and typhoid fever we have not had cases of cholera at least in this area. Even though nobody will come out to tell you what he is suffering from. Assuming something like that ever happened and assumed an alarming dimension, of course, we would have been informed or got to know..
Like you have said apart from malaria fever we can attribute it to the grasses we have around, the stagnant water?	Yes That is not all, don't you think that the waste they deposit not too far from you, the waste close to the moat that there are vectors like flies like rodents that will take something harmful from the bush and bring it to the house contaminate whatever you have at home unknown to you eat, and one is infected? We cannot rule out the possibility of rodents coming into the house, but we try to reduce them by using chemical substances to ensure that the place is not conducive for them. Like insecticides/fumigation.

Contradictory/Conforming sub-questions

Contradictory/conforming Sub-questions/theme	Responses/description/experience
1. Describe the relationship between the ritual/ceremony you like best and the indiscriminate waste disposal outlook?	It is not conforming. Because inside the church the place was decorated beautifully and all that and soon as the whole thing was over we step back home we see these things that are not desirable, If I should answer your question it was not conforming.
1 b. If I should take your mind back, this ceremony did it take place during the wet season or dry season? Alternatively, was it during the Harmattan season? Which of them?	It was during the dry season.
2. Does the waste condition present a better atmosphere for the ritual occasion to thrive?	I will say no. I will say the immediate church environment was clean, even though I know during the wet season, the moat there is a canal there that you were trying to present your stay there uncomfortable like the smell and all that. Thank God that it was during the dry season there was no such smell. If such the condition that befits the occasion.
3. Given the factors, what drivers could be modified to achieve a better understanding of an enduring waste management initiative?	Yes, there is a need for mass education for people to be educated on the benefits of a clean and healthy environment. Also on the implications of their action on the environment. There is a need for aggressive information dissemination; we have to let people know what they are doing and not doing well and how it affects other people. What they are doing well that should be sustained. There is a need for incentives because people at times will tell you "wetin bi my gain". There is a need for incentives, for instance, the people who are living or kill a cow at the slaughter slab may not be living in that environment. Moreover, this I do not care attitude how does it affect me? Only interested in what they get and after doing their job there they go home. You will discover that where they live they will not allow anything that will cause them any harm to stay there for a second. In that case, they are aware of the dangers, but for the simple fact that they do not care how it affects the other man. So such people should be encouraged to engage in healthy practices by way of giving them incentives and all that. If they do not want to comply you can arrest them and bring them to book or plant secret police officers that will get them arrested and handed over to the appropriate authorities for prosecution and all that. This will help in checking such excesses.
3b. Can we explore PA further, for example, there are various organisations ethnic groups, religious affiliations and so on, which have for quite a while	Why not these people can be used as channels to get this information to the expected people. For instance, when I said mass education, dissemination of information it may not necessary be the use of fliers alone but would include mass media among others. I could remember, while we were growing up we used to see the ministry of information vehicles. A town hall meeting could also be called

and they call the place their own and want to guide it jealously and get identified, bonded and belong to this environment? There are people like this whom we call stakeholders, and in every organisation, there is always a head can these be brought in such a way that they can communicate the ideals of enduring waste management to their members?	and talk to these people, you bring these people you enlighten them on what these things are, and they will now, in turn, teach others and educate them. It is something that if it is embarked upon the desired result will be positive.
--	---

APPENDIX 6b: Heads of households and families 2

PA Research sub-questions Themes	Responses/description/experience
1. What are commonly shared rituals at family and community levels?	Some of the family rituals are interwoven with community rituals. Take for example a child's birthday is not celebrated alone in the family. When talk of family rituals we talk of prayers in the morning come together as a family, we pray, to keep the environment and the house tidy, preparing of meals breakfast, lunch and supper. The other leg is community shared rituals. We talk of festivals celebrating of festivals; like Christmas, Salah or Easter. Keeping the environment clean, celebration of marriages, light celebration, cultural festivals. Like the free thinkers they celebrate their rituals, the good thing is that everybody come together voluntarily anyway.
2. Describe a particular ritual of your choice?	Coming together every morning to pray is a thing I will do every day. We recognise and thank our maker for the protection for the night and put our going out and what we are going for in his hands. So we must pray every morning the family cannot do without that. In the morning we sing praises as the head I bring out prayer points and commit what we want to do today in his hands then ask for protection. I lead the prayer points.
3. How significant are these activities?	All of them are significant in the sense that they all contribute to the total survival of the individual. Family rituals are things you do to keep body and soul together. While community rituals are things, you do to make the environment suitable for living. So all of them are significant.
Why engage in them if not what happens	Well like the family rituals if you do not engage in them, the family head will raise an eye brow already it is part of the discipline you have to instil in the family. Every member must participate. As for community rituals, there are rules and sanctions in some if you do not participate it gets to a point nobody comes to you. You can be ostracise from the community, or you will be fined.
	Well like the family rituals if you do not engage in them, the family head will raise an eyebrow already it is part of the discipline you have to instil in the family. Every member must participate. As for community rituals, there are rules and sanctions in some if you do not participate it gets to a point nobody comes to you. You can be ostracise from the community, or you will be fined.
5. With the aid of picture taken in an earlier event relieve/describe your experience?	Eh yes at times we go to celebration, and we are fulfilled on this occasion we were able to raise some money we used to complete the church putting gate, fencing and painting. The people that came were impressed on what they saw on the ground as we do the giving. Some of them pledged to pay. We were able to complete the church
6. How comfortable are you living in this area? Concerning the abattoir do not they still kill cow there?	Very comfortable well it is my house. Well, I have not been disturbed say by social miscreants. The community is relatively peaceful we are not too many in the street. If there is anything to be done when invited I attend and if I have anything I invite them they attend. The only problem I had since came for almost ten years is the abattoir issue which has been resolved by government. We went to court, and we won. So there is no more environmental pollution problem. Straight from the moat where they spill blood and animal droppings, and they start decaying. Apart from that, I think I enjoy staying here.

Next maybe the cow droppings or excreta? Some other people complained about the fact that when it rains, it would wash the droppings, and the stench is quite offensive and during the Harmattan season too. When the wind blows and raise some dust.	<p>No, they have stopped them from killing cow.</p> <p>They are not close. I do not perceive/experience the smell otherwise we would have complained.</p> <p>I would not know because I have not experience it.</p>
PEB/waste sub-questions	
Sub-question/Theme	Responses/ description/experience
1. What type of waste do you generate?	Mostly agricultural waste. Bio-degradable waste.
2. Having been shadowed for five days apply Appendix 7C	For the past five days I have been coming bio-degradable yes that is true followed by putrescible waste.
3. What waste management habit do you prefer?	When we lump everything together. Who will now do the separation? Right now in Nigeria, we do not separate waste. Until we are now turning waste to wealth and the government is planning that seriously. Well, I am speaking from experience, I am a waste manager. I go from house to house to collect waste there is no separation.
4. Describe your experience with public health issues like cholera, typhoid fever, bacillary dysenteries, or diarrhoea?	The rate of personal hygiene has improved. The scientific approach on the side of the government is high. Water borehole supply has reduced water-borne diseases. Moreover, with the awareness and campaign of health officials' stagnant water is reduced in the area. It has been said that mosquito kills more than anything else this is the cause. Recently people are becoming aware of and interested in the fumigation of their environment. Although I said, there is no middle class anymore, the lower the upper and upper class are interested in fumigation. Through fumigation, other vectors are eliminated. Cholera is a water-borne disease the supply of water is everywhere unlike when we used to go to Ikpoba river to fetch water all these have stopped. There has been improvement in personal hygiene, so since I came here, there have not been an outbreak of cholera.
However, you still experience diarrhoea?	If at all there is not on a large scale
Contradictory/conforming sub-questions	
Sub-questions/theme	Responses/description/experience
1. Describe the relationship between the ritual/ceremony you like best and the indiscriminate waste disposal outlook?	With the new environmental law enacted by government and having accredited waste managers and also coupled with individual waste managers. The question of environmental sanitation is adequately pursued. With the importance of environment sanitation. For a very long time, everybody is aware of the environmental ritual that every last Saturday of the month even till today. Once it is the last Saturday, everybody is out to tidy his/her premises this is a plus for the government because it has been done continuously it has become parts and parcel of the people.
Do you advocate for increased government presence couple with the law enforcement agents and the mobile courts to try waste defaulters?	Yes absolutely.
2. Does the 'waste condition' present a better atmosphere for the ritual occasion to thrive?	I would say yes because it helps in the cleaning of the houses and environs. I gave you an example of Uyiedo petrol station if you are passing there you close your nose because of the stench that comes from there so when we started we serve them violation with the intention of taken them to court. So we locked some stalls to be re-open with the payment of a fine. If we take people to court that will be the signal to serve as deterrent to other would be waste polluters. It would be better for the environment and the larger society.
3. Given the factors, what drivers could be modified to achieve a better understanding of an enduring waste management initiative?	There should be education such the inhabitants would know the importance of environmental health. Because at the end of the day the individual suffers

APPENDIX 6c: Interview guide to families and households

Place attachment and pro-environmental behaviour: A study of household solid waste management in Urora, Benin City, Nigeria.

Interview commenced after cross checking the information given earlier on a socio-economic survey of the participants.

Special session on Language and Othering

Section A: Background information

How do you consider yourself? within the group (in-Group) or Out-group (other)?
(The concepts were explained to the interviewees)

A. On waste generation in the house, street corners, public open spaces

1. How do you view waste generated at home that is left unattended to
2. Throughout the time I spent in your community, I observe keenly that the shrine area and surroundings were tidied up, why would that be when people do not live there or are there people staying there?
3. Do the present generation of youths and young adults who may have taken to other religion like Christianity still hold this opinion?
4. What is the local understanding of the concept of waste (mother-tongue words and what they connote)?
5. In your mother-tongue is there a word for the people who handle waste?
6. Describe your experience/encounter with the solid waste disposal/management process from generation at home to disposal at the public open space, would you say there is a specific person assigned the role to sweep/pack/dispose solid waste on a regular basis ?
7. Any particular reason why it should be that person and not other members of the household?
8. How regularly is the solid waste generated and disposed from the homestead?
9. With what container(s) is the solid waste disposed from the homestead?
10. What value do they place on waste?
11. Would the head of households be involved in waste management/disposal?
12. How do you use/practise this saying *ikoiko*?
13. What other term is peculiar to waste generation/disposal you are aware of?
14. Is environmental sanitation day invoke fear or synonymous with fear/terror?

APPENDIX 7a: SOLID WASTE INDICATOR/BENCHMARK FOR URORA RESIDENCE

Topic: Place attachment and pro-environmental behaviour: A case study of household solid waste management in Urora, Benin City Nigeria

During the field observation phase, the tables below was used to assess the degree of waste management efforts in the locality by keeping to the entries both in the row and column sections.

Physical Component	Indicator name and definition		Traffic light	colour	coding	
		Low	Low/Medium	Medium	Medium/High	High
Public health	Waste collection coverage: % of household who have access to a reliable waste collection service	0-49%	50-69%	70-89%	90-98%	99-100%
Score per neighbourhood						
Waste collection	Waste captured by the solid waste management and recycling system % of waste generated that is collected and delivered to an official facility	0-49%	50-69%	70-89%	90-98%	99-100%
Score per neighbourhood						
Environmental control disposal	Controlled treatment or disposal % of the total municipal solid waste destined for treatment or disposal which goes to either a state-of-the-art, engineered alternatively, 'controlled' treatment/disposal site	0-49%	50-74%	75-84%	85-94%	95-100%

Physical Component	Indicator name and definition		Traffic light	colour	coding	
		Low	Low/Medium	Medium	Medium/High	High
Score per neighbourhood						
Resource value- '3Rs'- Reduce, reuse, recycle	Recycling rate: % of total municipal solid waste generated that is recycled. Includes materials recycling and organics valorisation (composting, animal feed, anaerobic digestion)	0-9%	10-24%	25-44%	45-64%	65% and over
Score per neighbourhood						

APPENDIX 7b: SOLID WASTE INDICATOR/BENCHMARK FOR URORA RESIDENCE/ENVIRONS

Topic: Place attachment and pro-environmental behaviour: A case study of household solid waste management in Uroora, Benin City, Nigeria

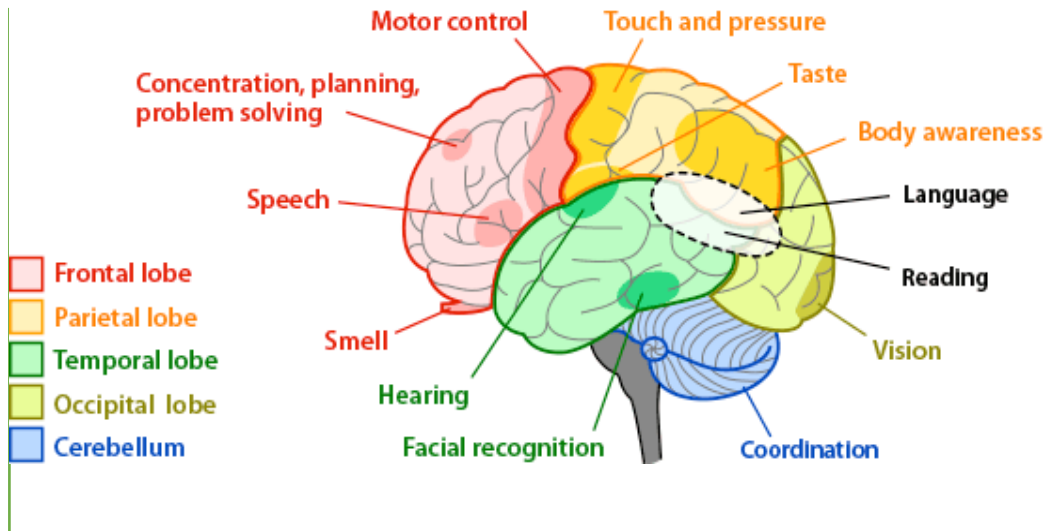
Criterion	Description	Remark
Appearance of waste collection points	Presence of accumulated waste around collection points/container	
Effectiveness of street cleaning	Presence of litter and overflowing litter bins	
Effectiveness of collection in study location	Presence of accumulated waste/ illegal dumps/open burning	
Efficiency and effectiveness of waste transport	Appropriate public health and environmental controls of waste transport	
Appropriateness of service planning and monitoring	Appropriate service implementation, management, and supervision in place	
Health and safety of collection workers	Use of appropriate personal protection equipment and supporting procedures	

APPENDIX 7c: Waste composition per capita and in percentage

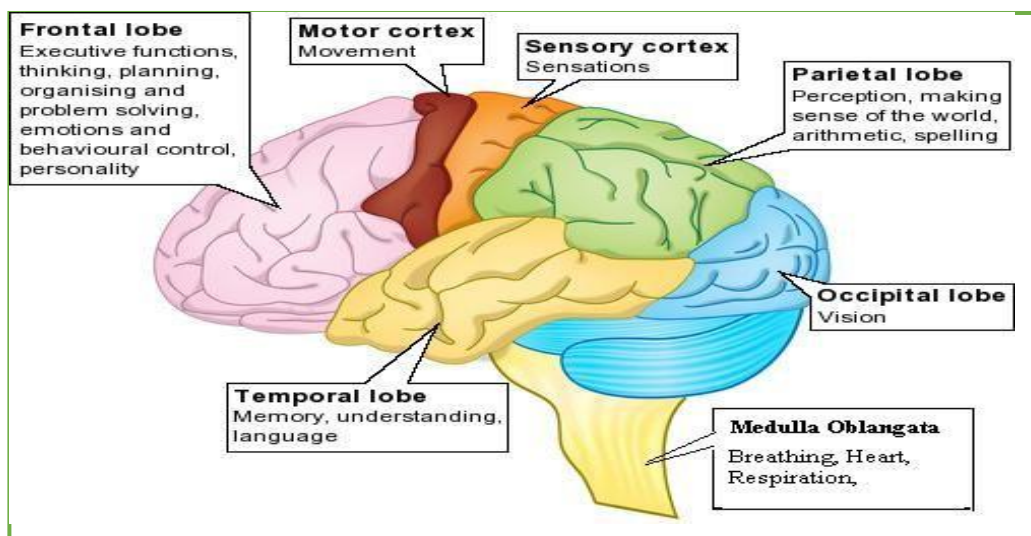
Topic: Place attachment and pro-environmental behaviour: A study of household solid waste management in Urra, Benin City, Nigeria

Days of the week	Bio-degradable		Plastics		Putrescible		Paper		Glass		Metals		Textiles		Others		Total	
	Kg/cap	%	Kg/cap	%	Kg/cap	%	Kg/cap	%	Kg/cap	%	Kg/cap	%	Kg/cap	%	Kg/cap	%	Kg/cap	%
Monday																		
Tuesday																		
Wednesday																		
Thursday																		
Friday																		

APPENDIX 8: Anatomical and functional mapping of the human brain



Source: <http://www.humanbrainfacts.org/interesting-brain-facts-for-kids.php>



Source: <http://www.humanbrainfacts.org/interesting-brain-facts-for-kids.php>

APPENDIX 9: Ethics Clearance Certificate



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

R14/49 Iyawe

CLEARANCE CERTIFICATE

PROJECT TITLE

'Place-attachment and pro-environmental behaviour: A study of household solid waste management in Urra, Benin in Nigeria

INVESTIGATOR(S)

Mr H Iyawe Architecture
and Planning/

SCHOOL/DEPARTMENT

22 July 2016

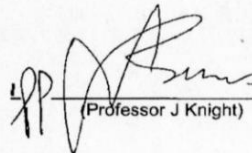
DATE CONSIDERED

Approved

DECISION OF THE
COMMITTEE

02 November 2019

EXPIRY DATE


(Professor J Knight)

DATE 03 November 2016

PROTOCOL NUMBER: H16/07/08

CHAIRPERSON

cc: Supervisor : Professor D Irurah

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to completion of a yearly progress report.

Signature

Date

