IMPROVIZED OBSOLESCENCE: OLUSOSUN COMPUTER VILLAGE

by

Oluwadamilola Akinbode

A thesis submitted to

The Faculty of Graduate and Postdoctoral Affairs.

In partial fulfillment of the requirements for the degree of

Master of Architecture

M.ARCH (Professional)

Azrieli School of Architecture and Urbanism

Carleton University

Ottawa, Ontario

©2017

Oluwadamilola Akinbode

1

Figure 1: Tree View From An Improvized Storage Room

Thesis Statement

Over the last twenty years, the exportation of used electronics have contributed immensely to shaping the economic landscape for developing countries like Nigeria. While 20% of these used electronics get refurbished, about 80% are deposited in nearby landfills. In Lagos Nigeria, the prolonged relationship between landfills and waste pickers, has generated a community that exhibits and inhabits collaged spatial conditions – an improvised small scale city in marked contrast to the ordered and often banal conventions of its larger context. This expression ranges from improvised shanties, changing scavenging pathways, makeshift storages, markets, workstations and the overall immediacy of overlapping activities. Through an appraisal of the conditions of a Lagos landfill site and a major refurbished-electronics market nearby, this thesis proposes a spatial resolution that explores an alternative approach to making. The agency of scavenging and improvisation is employed as a strategy towards a process of remediation that acknowledges the scavenger, the scavenged, and the future eventuality of this expired wasteland.

Keywords: electronic waste, landfill sites, urbanization, technology, nature, improvisation, collage, work, play, assembly, disassembly, bisection, recycling, landscape, making.

Acknowledgements

To God for His sufficient grace and loving kindness towards me during the course of putting this thesis together.

To my family for their continuous financial and moral support during my three years in Carleton University.

To my thesis Advisor Yvan Cazabon, for his guidance, encouragement and genuine interest in my research.

Table of Contents

Thesis Statement	iii
Acknowledgements	iv
Prologue	ix
Introduction: Cradle to Grave	1
A. Grave: Olusosun Landfill Site, Lagos, Nigeria	
B. Cradle: Ikeja Lagos Computer Village, Nigeria	
PART I: Grave to Cradle (Agency of Technobiophilia)	9
1.1 Biophilia	
1.2 Technobiophilia	
PART II: Cradle to Cradle (Agency of Improvisations)	15
2.1 Maker and Re-maker: Agents of Instant	
PART III: Cradle & Grave (Agency of the Corridor).....	22
3.1 An Unselfconscious Design Process	
3.2 Agency of the Tire Vulcanizer	
3.2.1 The Migration Phase	
3.2.2 The Framing Phase	
3.2.2 The Grounding Phase	
Conclusion	48
Bibliography	50
Appendices	51

List of Figures

1:	<i>Tree View From An Improvized Storage Room</i>	ii
2:	<i>Nigeria Small House With Laundry Olusosun Dump Lagos</i> (Source: www.joystudiodesign.com)	viii
3:	<i>Street Vendors along traffic congested road in Lagos</i> <i>Varying Scales of Informal Gathering</i>	ix x
4:	<i>Varying Scales of Informal Gathering (contd)</i>	x
5:	<i>Woman posing infront of a shanty house in Lagos.</i> (Source: bbc.co.uk)	xii
6:	<i>1) Ikeja Computer Village 2) Olusosun Landfill site</i> (Source: Author)	2
7:	<i>Site Map of Olusosun Landfill showing the publicness and transition pattern in relation to its context.</i> (Source: Author)	3
8:	<i>Aerial View of the main street along the current computer village</i> (Source: cerebrallemon.com)	5
9:	<i>Aerial View of Refurbished Mobile Phone Traders</i>	5
10:	<i>A kid inspecting the fan unit of a disassembled laptop</i> (Source: nubbsgalore.tumblr.com).....	6
11:	<i>The Garden of Earthly Delights - Hieronymous Bosch; 1490 -1500</i>	8
12:	<i>The Landfill re-imagined as a cybernetic meadow</i> (Source: Author).....	10
13:	<i>The Landfill re-imagined as a cybernetic meadow were nature and technology exists as one</i> (Source: Author)	10
14:	<i>A small city where technological analogies like data streams becomes the next nature</i> (Source: Author)	11
15:	<i>The natural condition of the Landfill</i> (Source: Author)	12
16:	<i>Improvized Religious Space</i> (Source: nairaland.com)	14
17:	<i>Exploded view of the Components of a mobile phone</i> (Source: www.ifixit.com)	17
18:	<i>Collaging different Paper cutout 'parts' as a representational tool for improvisation</i> (Source: Author).....	18
19:	<i>Spatial Collage of Proposed landfill Intervention</i> (Source: Author)	19
20:	<i>Spatial Collage of Proposed landfill Intervention 2</i> (Source: Author)	20
21:	<i>Spatial Collage of Proposed landfill Intervention 3</i> (Source: Author)	20
22:	<i>Improvized model of Landfill remediation spaces</i> (Source: Author)	21
23:	<i>Transformation of the landfill between 2000 - 2016.</i> (Source: Google Maps)	22
24:	<i>Interior View of Porous spaces where natural light floods through opportunities to personalize the</i>	

	<i>wall (Source: Author).....</i>	<i>23</i>
25:	<i>Top View of Improvised model (Source: Author)</i>	<i>23</i>
26:	<i>Rendering of the interior market space for natural lighting and customizable wall cart made using bamboo (Source: Author)</i>	<i>24</i>
27:	<i>Section of of improvisational model (Source: Author).....</i>	<i>25</i>
28:	<i>Section of of improvised model (Source: Author).....</i>	<i>25</i>
29:	<i>Axonometric view of high-line connecting the elevated workstations (Source: Author)</i>	<i>26</i>
30:	<i>Decomposition of rectilinear space using the landfill elements (Source: Author)</i>	<i>26</i>
31:	<i>Decomposition of rectilinear space using the landfill elements (Source: Author)</i>	<i>27</i>
32:	<i>Elevated work and play spaces over landfill site at the framing phase (Source: Author).....</i>	<i>28</i>
33:	<i>Improvised Storage facility for used- electronics spare part (Source: pinterest.com)</i>	<i>29</i>
34:	<i>Landfill at the framing phase (Source: Author)</i>	<i>30</i>
35:	<i>Landfill at the grounding phase (Source: Author)</i>	<i>31</i>
36:	<i>Landfill at the grounding phase (Source: Author)</i>	<i>32</i>
37:	<i>Landfill in 2017 at the migration phase (Source: Original: google maps, edited by Author).....</i>	<i>33</i>
38:	<i>Landfill at the grounding phase by 2022 (Source: Original: google maps, edited by Author).....</i>	<i>33</i>
39:	<i>Site Plan... Tire vulcanizing stations as anchors connecting other unstable activities along the spine (Source: Author).....</i>	<i>35</i>
40:	<i>1) Site Plan Elevated Sorting Stations....Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)</i>	<i>36</i>
41:	<i>Modular Market Plan... Tire vulcanizing stations as anchors connecting other unstable activities along the spine (Source: Author).....</i>	<i>37</i>
42:	<i>1) Site Plan Elevated Sorting Stations....Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)</i>	<i>37</i>
43:	<i>Transformation of the landfill between 2016 - 2022. (Source: Author).....</i>	<i>38</i>
44:	<i>Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)</i>	<i>39</i>
45:	<i>Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)</i>	<i>40</i>
46:	<i>Transformation of the landfill at the framing phase. (Source: Author).....</i>	<i>41</i>
47:	<i>Transformation of the landfill at the framing phase. (Source: Author).....</i>	<i>43</i>
48:	<i>Transformation of the landfill at the framing phase in 2018. (Source: Author)</i>	<i>44</i>

49:	<i>Transformation of the landfill at the framing phase in 2019. (Source: Author)</i>	45
50:	<i>Transformation of the landfill at the framing phase in 2020. (Source: Author)</i>	46
51:	<i>Transformation of the landfill at the framing phase in 2021. (Source: Author)</i>	47
52:	<i>Lagos, Nigeria (Source: Author)</i>	51
53:	<i>Grow precedence th Map of Lagos. Edited by Author (Original: futurecapetown.com)</i>	52
54:	<i>Waste Pickers on Landfill (Source: http://www.dailymail.co.uk)</i>	54
55:	<i>Waste Trucks on Landfill (Source: www.independent.ng)</i>	55
56:	<i>Tire vulcanizer repairing a tire (Source: http://www.nairaland.com)</i>	58
57:	<i>A typical Tire vulcanizer station (Source: http://www.nairaland.com)</i>	59

Figure 2: Nigeria Small House With Laundry Olusosun Dump Lagos
(Source: www.joystudiodesign.com)

Prologue

The lush green tropics of West Africa's suburbia: visually theatrical at dawn, is transformed at dusk into a panoramic silhouette of dancing edges orchestrated by the adeptness of the warm south west trade winds. As the night unfolds, the fauna lurking between the numerous knees of the dancing greenery, proclaim their presence with various melodies – an interestingly rhythmic increase in decibels. In those frequently warm nights with a sporadic supply of electricity to our neighborhood, a sudden power supply can seem as oddly interrupting this poetic and gleeful display of natural songs.

Figure 3: Street Vendors along traffic congested road in Lagos

Using Rem Koolhaas's analogy, Lagos as a fast growing city in Nigeria, is characterized by unusual public occurrences when viewed up-close. These range from informal scavenging around large dump sites, informal markets that populate traffic congested areas like rail and major highways. From above, Lagos is an organic city experiencing a rapid influx of dwellers from the surrounding rural areas searching for better livelihoods.

Figure 4: Varying Scales of Informal Gathering

Lagos with a current population of around 21 million, is the largest city in Africa and one of the fastest growing mega cities in the world.¹ The city's occupants are proud of its informalities - an impossible situation that only they can inhabit.

The colonial interventions of the 19th Century by the British and the Portuguese slave traders contributed to Lagos' current configuration. The buildings located within the vicinity of the port 'Victoria Island' still exhibit qualities reminiscent of both Portuguese and British origin.

The planning strategies during the formative stages of Lagos were generally based on environmental sanitation of land plots defining the lot lines of the city grid.

¹Government, Lagos State. 2016. About Lagos. Accessed December 15, 2016. <http://governor.lagosstate.gov.ng/about-lagos/>.

This thesis explores the landfill in the greater context of Lagos which presents a challenging relationship between the technological impact of electronic wastes on the economy and its impact on the original landscape - in stark contrast to the manufactured landscape of landfills. It is home to the largest 'second hand' technology market in Africa known as the Ikeja Computer Village and one of the largest electronic waste dump sites: Olusosun landfill site. Due to the ephemeral and finite nature of landfills, the scavenging culture - much like a 'native culture' - are often times disregarded when re-mediating waste sites leading to spatial interventions that erase characteristics from the existing recycling culture.

Figure 5: Varying Scales of Informal Gathering (contd)

Figure 6: Woman posing in front of a shanty house in Lagos. (Source: bbc.co.uk)

Introduction: Cradle to Grave

A. Grave: Olusosun Landfill Site, Lagos, Nigeria

The relationship between the gatherer and the gathering, the audience and the spectacle was one of many disparities while questioning how waste is generated and used. The Olusosun Landfill site in Lagos is the largest in Africa. Its home to 42% of wastes generated in Lagos and the second largest recipient of electronic wastes in Africa after Agbogbloshie in Ghana.² As a stable for e-waste recycling and having been in operation for over twenty five years, Olusosun is either a citadel of “economic boon or environmental doom”. The simple act of dumping wastes in this place has not only reshaped the landscape geographically but also introduced a community of informal actors that see value in waste not just as a collection of discarded everyday objects. On a daily basis, computers, mobile phones and televisions are regularly bought and sold, assembled, disassembled, and reassembled. Even though waste harvesting is a major economic source of livelihood for the recycling community of Olusosun, the neighborhood’s relationship with the site lies in contrast to its devastating air pollution, a result of poorly prepared landfill, lack of adequate treatment for odor and over use.

²Lagos Waste Management Authority. 2013. “Waste Management in Lagos State: The Journey So Far.” LAWMA. Accessed 12 15, 2016. <http://www.lawma.gov.ng/md%20presentation/2013/SWM%20in%20Lagos%20Journey%20So%20Far.pdf>.

Figure 7: 1) Ikeja Computer Village 2) Olusosun Landfill site (Source: Author)

Figure 8: Site Map of Olusosun Landfill showing the publicness and transition pattern in relation to its context.
(Source: Author)

B. Cradle: Ikeja Lagos Computer Village, Nigeria

On the other hand, the computer village is a pinnacle of the economic prowess of the city as it generates two billion dollars annually towards the Nigerian economy.³

A proposal by the state government to re-mediate the landfill into a golf course/ recreation center by 2022 is being met with mixed reactions.⁴ It is as a plan designed to generate wealth and spaces for the rich while the urban poor's means of livelihood that the site provides is erased from a landfill that has been in operation for close to 25 years.⁵

Therein lies the challenge to intervene on a site characterized with an ever changing manufactured landscape propagated by its various inhabitants and actors. Before sweeping or burying this complex site under an emerald rug this proposal embraces the opportunity to give life to its historical and cultural footprints by employing the improvisational strategies of its present program while re-mediating for its future use – a collage that respects the history and culture of the site while introducing the potentials for new uses.

³Nigeria, Vanguard. 2013. *Computer Village generates \$2bn annually to economy – Minister*. 18 4. Accessed 15 12, 2016. <http://www.vanguardngr.com/2013/04/computer-village-generates-2bn-annually-to-economy-minister/>.

⁴Lagos Waste Management Authority. 2013. "Waste Management in Lagos State: The Journey So Far." LAWMA. Accessed 12 15, 2016. <http://www.lawma.gov.ng/md%20presentation/2013/SWM%20in%20Lagos%20Journey%20So%20Far.pdf>.

⁵Ibid

Figure 9: Aerial View of Refurbished Mobile Phone Traders

*Figure 10: Aerial View of the main street along the current computer village
(Source: cerebrallemon.com)*

*Figure 11: A kid inspecting the fan unit of a disassembled laptop
(Source: nubbsgalore.tumblr.com)*

4

PART I

I want to quarrel with your opposition of culture and nature. Culture is always cultivated nature — nature being tended and being taken care of by one of nature's products called man. If nature is dead culture will die too, together with all the artifacts of our civilization.

- Hannah Arendt

Figure 12: *The Garden of Earthly Delights* - Hieronymus Bosch; 1490 -1500

I like to think
 (and the sooner the better!)
 of a cybernetic meadow
 where mammals and computers
 live together in mutually
 programming harmony
 like pure water
 touching clear sky.

I like to think
 (right now, please!)
 of a cybernetic forest
 filled with pines and electronics
 where deer stroll peacefully
 past computers
 as if they were flowers
 with spinning blossoms.

I like to think
 (it has to be!)
 of a cybernetic ecology
 where we are free of our labors
 and joined back to nature,
 returned to our mammal
 brothers and sisters,
 and all watched over
 by machines of loving grace.⁶

⁶Brautigan, Richard. 1967. "All Watched Over by Machines of Loving Grace." *Red House Books*. Accessed 12 15, 2016. <http://www.redhousebooks.com/galleries/freePoems/allWatchedOver.htm>.

Grave to Cradle (Agency of Technobiophilia)

1.1 Cradle: Biophilia

In engaging with this geographically unstable site, cleansing it needs an inevitable engagement with its natural origins. How does one gauge its original state? Can it, should it be restored? How can the architect give life to the technological wastes that populates the depth of the landfill? How do we re-imagine and maximize the role of these wastes not as something to erase but as something to showcase? How do we plant spatial improvisations from wastes for the environment to nurture? It is important to pose these questions in order to have a deeper understanding of the in-situ radical interventions and most importantly its likely causes. One of the basic attributes of the human experience is our affinity for our natural world. Biologist E.O Wilson popularized this with the term biophilia, as the degree to which humans need connection with the natural world and other forms of life. In his words he described biophilia as “An innate emotional affiliation of human beings to other living organisms. Innate means hereditary and hence part of the ultimate human nature.”⁷

1.2 Grave: Technobiophilia

Technobiophilia is our innate tendency to focus on these biophilic states for life and lifelike processes as they appear in technology. Our biophilic nature and the qualities of

nature itself has influenced our creation and exploration of the internet and cyberspace.

⁷Thomas, Sue. 2013. *Technobiophilia: Nature and Cyberspace*. London: A&C Black. Page 11

Figure 13: The Landfill re-imagined as a cybernetic meadow (Source: Author)

This is reflected in the use of nature's metaphors like cloud, twitter streams, viruses, bugs etc., in our ongoing nomenclature of the Internet.⁸ This extension of our natural experiences shows our desire to use technological nature to bridge our lives in nature with our lives in the digital, a tech-nature balance as Sue Thomas puts it.

The horseless cart analogy was used to describe a car while the incandescent bulb was described as an electric candle. Over time these metaphors became less descriptive of those technologies which made them evolve into new ones. The digital realm being the

Figure 14: The Landfill re-imagined as a cybernetic meadow where nature and technology exists as one (Source: Author)

facade of our technologies have seen an increase in the use of metaphors to describe virtual functions and forms. The metaphors of the cyberspace most especially were inspired by three major activities of nature - storage, mining and streaming. In terms of data storage we have cloud, tree, and recycle bins, viruses and worms that attack storage. In terms of data mining and streams we began using paths for files, servers for storages, surfing, mouse etc.

These were the fundamental analogies that kick started our comprehension of the cyberspace. However like most analogies these metaphors have become increasingly less descriptive of the things they are meant to describe. What happens to files in and beyond the recycle bin? For example our digital experiences give less comprehension to what happens to permanently disposed unwanted 'files'.

*Figure 15: A small city where technological analogies like data streams becomes the next nature
(Source: Author)*

Over the years our mobile devices have removed the recycle bin as a feature. It's easy to push the delete button and not worry about what happens to the unwanted file. Could our digital experiences be influencing our physical culture of treating electronic wastes? By engaging this question in an architectural context, spaces can act as agents to collage the experience of these natural definitions and their technological derivatives.

The spatial and programmatic qualities of natural clouds combined with the functional narratives of the digital cloud presents a unique opportunity to juxtapose nature and technology without compromising the respective other. By exploring the functionality

Figure 16: The natural condition of the Landfill (Source: Author)

of the digital recycle bin, there exists an opportunity to engage our electronic wastes not only as an end product of our digital lives but as a cradle to rehabilitate the wastes simultaneously as an object and a natural environment. In the case of Olusosun landfill, the main corridor runs through the middle of the site despite the changing locations of the other ephemeral paths that were created and erased over time. It is through this corridor that all the different actors have an opportunity to engage with each other with

the site in the foreground. The path demarcates where the various makers can co-exists on their journey along the site.

The maker engages with the waste in order to make them work. They specialize in refurbishing faulty electronics and preparing them for a second life. The un-maker on the other hand deals specifically with the retrieval of elements like gold, copper in order to resell them. They do not scavenge waste to repair, they scavenge to disintegrate. The re-makers are at the core of the landfill site as they reshape the landscape by reshaping the use of its layer of wastes. They constantly change waste topographically, morphing the site through the potentials of found materials and textures. The over-taker is the colonial intervener on this site, the golf course evangelist seeking a face-lift to increase the economic value of the context. A weave of these various actors through a time-line of a changing landscape as evident through its existing spatial improvisations, creates a surreal understanding of two decades of landfill activities understood through the lens of natural forces and analogies of technology.

Figure 17: Improvised Religious Space (Source: nairaland.com)

5

PART II

2.0 Cradle to Cradle (Agency of Improvisations)

“The proliferation of what Potrc calls “urban negotiations” —the abundance of ad hoc building strategies across the globe—reveals a way of doing and of being in the world. It manifests a practical and inventive human agent who is resourceful with what is presented, be it situations, materials, people, or resources like energy or water. This agent of the instant uses the given world not to re-create the world in his or her own image, since this would be to claim a consistent subject, nor to create a sense of place, for this would be a return to the vernacular, but simply to survive in the world. What slum dwellers build is displaced by how they build, and how they build is the lesson to be learned. The challenge to artists is then to present not the object but the manner in which these constructions are produced, a manner inseparable from its producer. This active subjectivity can be characterized as that of the bricoleur, and his or her way of being in the world, as bricolage.”⁹

2.1 Maker and Re-maker: Agents of The Instant

The improvisational process of making powers the process of waste recycling as evident in the distinctive connection between the Ikeja computer village and the Olusosun landfill site. The computer village is home to electronic technicians that specialize in the repair of imported used electronics that are refurbished for sales by the many sales stores that have repopulated the façades of the historically residential neighbourhood. An ad-hoc mini city where every special activity overlaps with people performing multiple roles within the same zone.

⁹ Real, Patricio del. 2008. “Slums Do Stink: Artists, Bricolage and Our Need for Doses of “Real” Life.” *Art Journal* 85.

*Shredded Components of used and discarded electronics for refurbishment
(Source: By Author)*

The technicians, resellers, residential and commercial tenants, all share the same zone and support each other's roles in this perfect market.

The refurbished electronics emerge daily as ornaments that line either ends of the streets forming a facade complemented by the numerous mobile vendors on carts and on foot lining these streets.¹⁰ At the landfill sites, the other 75% of electronics are sorted as wastes, where scavengers scan through a pool of 'treasure' to find useful ones that can yield substantial economic value that eludes the technicians at the computer village.¹¹

¹⁰ Ibrahim, Fatima Badiru, Begianpuye Adie Donatus, Giwa Abdul-Raheem, Charles Amen Okuofu, and Sule Argungu Abdullahi. 2013. "Material Flow Analysis of Electronic Wastes (e-Wastes) in Lagos, Nigeria." *Journal of Environmental Protection*. 4. Accessed 12 15, 2016. <http://www.scirp.org/journal/jep>.

¹¹ Informal Recycling (Crude Methods) handles about 50 percent to 80 percent of e-waste, it involves shredding, burning, and dismantling the products mostly in backyards shanties and dumpsites. Emissions from these recycling practices are damaging to human health and the environment.

These scavengers, the technicians, the used electronics sellers are all actors that interact with discarded technology to make them operational either by means of improvisation or refurbishment.

Figure 18: Exploded view of the Components of a mobile phone (Source: www.ifixit.com)

These improvisers - the agents of the instant, according to Levi-Strauss negotiate with their found inventory of tools and materials to make or re-make based on how they can realize their immediate needs.¹²

Unlike premeditated making, the contributing elements are 'preconstrained' by the specifications of their original usage or the adaptations – if any – that these

12 Levi-Strauss, C La Pens'ee Sauvage Librairie Plon, Paris, 1962, ch 1, pp 32–33 [Ref. 59, pp 18–19]

heterogeneous objects in their treasury has undergone. In this case, having a preconceived framework still doesn't hinder the obscurity or the surprise of the consequent product or process; whereas the consequence of the 'made' is understood explicitly through this transformational process.

The result of this engagement is termed to be unselfconscious and unprecedented as it challenges the scientific process of making with its immediate provision of tools to the extent of setting an unplanned stage for a premeditated event and vice versa.¹³

The lack of a distinctive spatial connection between a similar process of making and organization at the market village and the dump-site is a result of their ad-hoc and complex layers. The computer village has endured a history of layering and collage as it was transformed from a residential neighborhood into a predominantly commercial community for electronics. The existing residential community has become saturated

Figure 19: Collaging different Paper cutout 'parts' as a representational tool for improvisation (Source: Author)

¹³Louridas, P. (1999, October). Design as Bricolage: Anthropology Meets Design Thinking. Retrieved March 31, 2017, <http://www0.dmst.aueb.gr/louridas/pubs/louridas-bric.pdf>

with commercial storefronts which was why a new location had to be proposed for the village's migration. Unlike the landfill however, the village can be described as a cluster of overlaid commercial spaces imposed rather than collaged and negotiated hence there exists complicated traffic problems and frictions in and around the corridor of transition between the private residential buildings and the public zones of the abutted

Figure 20: Spatial Collage of Proposed landfill Intervention (Source: Author)

commercial storefronts. The boom in the mobile electronics industry at the turn of the millennium, led to the establishment of small clusters of electronic vendors across the city. The proximity of the Ikeja market to a nearby rail and the its ideal conditions, facilitated this aggregated growth of the computer market from a residential zone to a gentrified neighbourhood.

Figure 21: Spatial Collage of Proposed landfill Intervention 2 (Source: Author)

Figure 22: Spatial Collage of Proposed landfill Intervention 3 (Source: Author)

Figure 23: Improvised model of Landfill remediation spaces (Source: Author)

6

PART III

3.0 Cradle & Grave (Agency of the Corridor)

As earlier stated, there is a proposal to refurbish the landfill into a golf course. To prepare for this eventuality by 2022, half way before this project commences, this thesis project proposes that the corridor is reengaged as a disassembly line for the improvisers (the makers, the re-makers, the un-makers, the undertakers and the over-takers) not as a departure point to work on the waste mounds, but as departure point to play on the manufactured landscape before the green terrain is laid. The corridor is of particular importance as an anchor due to it being the only constant element of the landfill where the commuters, the various actors on the landfill intersect while using it to transition to their respective destinations. Within an environment that exhibits constant change,

Figure 24: Transformation of the landfill between 2000 - 2016. (Source: Google Maps)

the corridor provides an opportunity to negotiate the different actors while providing a space for rehabilitating them during the course of the proposed transformation.

Figure 25: Top View of Improvised model (Source: Author)

Through a process of piling, excavation, and mining, the corridor continues in its role as a major artery connected by gates at either end of the site. The activities that once characterized the landfill are incrementally layered spatially along the corridor. Storage for recyclable wastes support potentials for waste pickers to continue their activities which range from disassembly, assembly to sales.

Figure 26: Interior View of Porous spaces where natural light floods through opportunities to personalize the wall (Source: Author)

The path that threads through a wasteland becomes a frame by which a glimpse into the

activities that once preoccupied the wasteland is captured as a symbol of what once was - an improvised obsolescence.

Figure 27: Rendering of the interior market space for natural lighting and customizable wall cart made using bamboo (Source: Author)

3.1 An Unselfconscious Design Process

By using locally found materials such as bamboo and discarded wood from nearby sawmills, an 'improvised framework' presents a structure for an improvised space. How much can an architect do to create a space that gives room for further improvisation by a user? A lighter hand in the interventions provides more opportunities for the bicoloreur to engage as they improvise within the space thus democratizing the architecture. Since the primary activities involve both displaying of market wares and screening for commuters, the role of partitions is questioned. Making a partition that functions as a gate provides more engagement by the user and acts as a catalyst towards the process of re-purposing found or local objects.

This process of design led to the exploration of playing with discarded materials to

interpret/derive new form of use. Electronic parts reconfigured together were used to explore possible relationships and opportunities that collaging seemingly unrelated parts can provide. One major function that emanated during the course of this study was the

Figure 28: Section of of improvisational model (Source: Author)

Figure 29: Section of of improvised model (Source: Author)

possibility of elevating the construction on pilotis where the spaces along the corridor act as stations supporting excavated material recovery for workers on site as well as an elevated high-line that retains the functionality of the corridor within the same location albeit overlooking the ongoing transformation of the landfill site. There is an opportunity for the user to get a better sense of events on the site without necessarily intruding or being exposed to any form of hazard.

Figure 31: Axonometric view of high-line connecting the elevated workstations (Source: Author)

Figure 30: Decomposition of rectilinear space using the landfill elements (Source: Author)

Figure 32: Decomposition of rectilinear space using the landfill elements (Source: Author)

The perforations around the fabric of the electronic parts represents the porosity of the framework which allows the improviser to personalize their zone through the use of found objects used in the making of their improvised shanties. Over time, as the site in being re-purposed, the framework becomes more grounded in meaning as it serves as a background or a canvas for this layering to take effect. This gives room for varying materials and textures to populate the façade of the framework which is a reflection of the ongoing transformation of the context.

Figure 33: Elevated work and play spaces over landfill site at the framing phase (Source: Author)

The proposal follows the general configuration of earlier explorations. Bamboo trunks are used for the main structure allowing the commuter to navigate through the decked spaces without engaging with the site directly. It also reduces possible interruptions of their daily activities unlike the highway/rail informal markets. A partition that acts as both a screen and a backdrop for display is proposed as the basic field facades with the possibility of customization by the user.

The final phase explores grounding the spaces on concrete piles as well as retaining the wastes as means of demarcating the landscape during the remediation process. Through the process of piling, excavation of the top soil (which constitutes the waste), retaining wall for demarcation and further possible mining operations by the waste pickers, the site is transformed into an archaeological dig site. This proposed foundation footprint defines the various areas of excavation upon which the framework made of local materials float. For this, conventional programmable spaces were overlaid on existing pathways to explore the avenues for the architecture on the landscape.

*Figure 34: Improvised Storage facility for used- electronics spare part
(Source: pinterest.com)*

Figure 35: Landfill at the framing phase (Source: Author)

Figure 36: Landfill at the grounding phase (Source: Author)

Figure 37: Landfill at the grounding phase (Source: Author)

*Figure 38: Landfill in 2017 at the migration phase
(Source: Original: google maps, edited by Author)*

*Figure 39: Landfill at the grounding phase by 2022
(Source: Original: google maps, edited by Author)*

"It is in the nature of beginning that something new is started which cannot be expected from whatever may have happened before. This character of startling unexpectedness is inherent in all beginnings and in all origins.... The new always happens against the overwhelming odds of statistical laws and their probability, which for all practical, everyday purposes amounts to certainty; the new therefore always appears in the guise of a miracle." – Hannah Arendt

¹⁴ Arendt. 1998. "The Human Condition. Chicago IL. Press.10.7208/chicago/9780226924571.001.0001[CrossRef], [Google Scholar]

3.2 Agency of the Tire Vulcanizer

The scale of the spine as an anchor to situate the architectural process is an intervention from predominantly an aerial perspective of the landfill. However up close there are varying opportunities to take into consideration in order to successfully achieve the proposed framing and grounding phases:

Tire Vulcanizing Station

Figure 40: Site Plan... Tire vulcanizing stations as anchors connecting other unstable activities along the spine (Source: Author)

3.2.1 The Migration Phase (2017)

This phase is the form finding phase which entails the relocation of the waste pickers from either ends of the landfill towards the spine. This event presents an avenue for various clusters to be formed along the corridor. These clusters will be located at the discretion of the waste pickers depending on their varying and similar interests ranging

from storage to sheds for their activities. The spine is layered over time around the tire vulcanizing stations. Tire vulcanizers are very common in Nigeria especially along major roads. They do mostly repair and maintenance work on vehicle tires as well as selling refurbished ones. They are quite flexible and adapt their stations easily along commercial corridors. Their relationship with the insider in terms of waste/used tires and the services they provide for the outsider, presents them as a strong anchor that can initiate the all important dialogue along the spine

Figure 41: 1) Site Plan Elevated Sorting Stations....Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)

Figure 43: Modular Market Plan... Tire vulcanizing stations as anchors connecting other unstable activities along the spine (Source: Author)

Figure 42: 1) Site Plan Elevated Sorting Stations....Framing of different activities using concrete piles, bamboo and tire screen/ display wall (Source: Author)

Over the course of a year, the spine undergoes a rapid transformation – constant wearing and peeling of varying materials and textures. It becomes a ‘safe space’ not only for the waste pickers but a veil that shields the commuters from hazards of the remediation process and also to introduce an intimate space - through the agency of the vulcanizing stations - to negotiate safely with the waste pickers market.

3.2.2 The Framing Phase (2018-2020)

As explained from the wide perspective, this framing phase entails a light demarcation of clusters using concrete piles as markers that enable a loose documentation of the footprint of their activities so far. The framing becomes the cradle of changing form and use.

*Figure 44: Transformation of the landfill between 2016 - 2022.
(Source: Author)*

Figure 45: Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)

Figure 46: Framing of different activities using concrete piles, bamboo and tire screen/display wall (Source: Author)

As the transforming landscape begins to encroach on the spine, these foundation markers enable the elevation of spaces. The corridor becomes a highline out of which elevated programs begin to emanate on either sides.

3.2.3 The Grounding Phase (2021-2022)

Towards the end of the five – year remediation process, the framework and its layers are further engaged as a canvas for lastingness where some areas can either

*Figure 47: Transformation of the landfill at the framing phase.
(Source: Author)*

be left untouched or some re-purposed to conform to a golf club program. This is a speculative phase as a result of the resulting representation of the former landfill as the concentrated spine. At this stage the waste pickers have less connection with the former

landfill as a result of the economic engagements that has emanated from negotiating with the commuters. The time-line gives room not just to rehabilitate their condition but also to facilitate the process of introducing them to the larger context of the landfill that will be very difficult if they are displaced immediately after the site is closed.

*Figure 48: Transformation of the landfill at the framing phase.
(Source: Author)*

Figure 49: Transformation of the landfill at the framing phase in 2018. (Source: Author)

Figure 50: Transformation of the landfill at the framing phase in 2019. (Source: Author)

Figure 51: Transformation of the landfill at the framing phase in 2020. (Source: Author)

Figure 52: Transformation of the landfill at the framing phase in 2021. (Source: Author)

4. 0 Conclusion

The exploration of this thesis focused on the process of employing improvisational crafting with waste as a means of critiquing (a direct disobedience) of the conventional process of making. The planned obsolescence of the technological process of making is being challenged by introducing a natural cycle whereby waste becomes the cradle of making. A bio-mimetic and spontaneous approach to making by means of layering and collaging without any premeditated design or program but with actions of immediacy that break free from linear process. This surreal inquiry is inspired by the quality of spaces the waste pickers have provided for themselves.

The urban topography of the larger context of this collaging exploration already suggests a city that has adapted to the economy of its landscape. The improvised shanties on the landfill are not so different from the various 'inhabited uncompleted buildings' that populate the residential neighbourhoods and the abandoned government projects, scattered around the city and evident at the overpopulated Ikeja computer village. The relationship between the perceived nature and it's technological manifestation is exhibited within the process of technological wastes transforming into manufactured landscapes before being swept under an artificial emerald rug. This inspired the notion of exploring technobiophilia as a collaging utopian/dystopian lens in an attempt to understand the relationship that exists both theoretically and practically between man, making and the natural environment.

It then became evident that the architect's role as *agent of the instant* relied on improvisational responses to the site. The design proposal of this thesis is anchored on the main scavenging pathway that bisects the landfill by creating varying scales

of lightly programmed spaces allowing for further evolution through the dwellers' spontaneous improvisations while providing basic programs and surprising moments in the transforming landscape. The precedence of the architecture to catalyze the improvisers to use locally found materials and textures as adaptive tools and to realize their immediate needs opens up different possibilities of questioning the eventuality of a space by democratization which is a key issue in developing urban spaces today.

Bibliography

Arendt, H. (1998). *The Human Condition* (2nd ed.). Chicago, IL: University of Chicago Press. 10.7208/chicago/9780226924571.001.0001 [CrossRef], [Google Scholar]

Arendt, Hannah, Mary McCarthy, and Carol Brightman. 1995. *Between friends: the correspondence of Hannah Arendt and Mary McCarthy, 1949-1975*.
New York: Harcourt Brace.

Brautigan, R. (1967). *All Watched Over by Machines of Loving Grace*. Retrieved 12 15, 2016, from Red House Books: <http://www.redhousebooks.com/galleries/freePoems/allWatchedOver.htm>

Government, L. S. (2016). *About Lagos*. Retrieved December 15, 2016, from <http://governor.lagosstate.gov.ng/about-lagos/>

Ibrahim, F. B., Donatus, B. A., Abdul-Raheem, G., Charles Amen Okuofu, & Sule Argungu Abdullahi. (2013, 4). *Material Flow Analysis of Electronic Wastes (e-Wastes) in Lagos, Nigeria*. Retrieved 12 15, 2016, from *Journal of Environmental Protection*: <http://www.scirp.org/journal/jep>

Lagos Waste Management Authority. (2013). *Waste Management in Lagos State: The Journey So Far*. Retrieved 12 15, 2016, from LAWMA: <http://www.lawma.gov.ng/md%20presentation/2013/SWM%20in%20Lagos%20Journey%20So%20Far.pdf>

Levi-Strauss, C. (1962). *La Pensee Sauvage (The Savage Mind)*. Paris: Librairie Plon.

Louridas, P. (1999, October). *Design as Bricolage: Anthropology Meets Design Thinking*. Retrieved March 31, 2017, from [www0.dmst.aueb.gr](http://www0.dmst.aueb.gr/louridas/pubs/louridas-bric.pdf): <http://www0.dmst.aueb.gr/louridas/pubs/louridas-bric.pdf>

Nigeria, V. (2013, 4 18). *Computer Village generates \$2bn annually to economy – Minister*. Retrieved 15 12, 2016, from <http://www.vanguardngr.com/2013/04/computer-village-generates-2bn-annually-to-economy-minister/>

Real, P. d. (2008). *Slums Do Stink: Artists, Bricolage and Our Need for Doses of “Real” Life*. *Art Journal*, 85.

Thomas, S. (2013). *Technobiophilia: Nature and Cyberspace*. London: A&C Black.

Appendix A

Historical Context of Lagos, Nigeria.

Portuguese explorer Rui de Sequeira visited the area in 1472, naming the area around the city Lago de Curamo; indeed the present name is Portuguese for “lakes”. Another explanation is that Lagos was named for Lagos, Portugal—a maritime town which, at the time, was the main centre of Portuguese expeditions down the African coast, and whose own name is derived from the Latin word Lacobriga.

Figure 53: Lagos, Nigeria (Source: Author)

Lagos was formally annexed as the British Lagos Colony in 1861. This had the dual effect of crushing the slave trade and establishing British control over palm and other trades. The remainder of modern-day Nigeria was seized in 1887, and when the Colony and Protectorate of Nigeria was established in 1914, Lagos was declared its capital,

continuing as such after the country's independence from Britain in 1960. Along with migrants from all over Nigeria and other West African nations were the returnee ex-slaves known as Creoles, who came from Freetown, Sierra Leone, Brazil and the West Indies to Lagos. The Creoles contributed to Lagos' modernization and their knowledge of Portuguese architecture can still be seen from the architecture on Lagos Island.

Lagos experienced rapid growth throughout the 1960s and 1970s as a result of Nigeria's economic boom prior to the Nigerian Civil War. Lagos was the capital of Nigeria from 1914 up to 1991. The city was stripped of its status when the Federal Capital Territory was established at the purpose-built city of Abuja. On 14 November 1991, the Presidency and other federal government functions were finally relocated to the new capital city of Abuja.

Figure 54: Growth Map of Lagos. Edited by Author (Original: futurecapetown.com)

Appendix C

A Report on Olusosun Landfill Site by Independent Newspaper (Nigeria)

The Olusosun land fill that has placed and still places food on the tables of so many families, no doubt is a source of nightmare to some other families, particularly those of the host community. This is due to the disturbing stench oozing out of the heap of garbage on the dump site and the health hazards it poses to the people in the neighbourhood.

The horrible scene means a whole lot to the people inside than those outside. Several activities going on at the time at this commercial hub of the state. As at the time of visit, some people, young and old, who could be described as scavengers were seen combing the heap for the day's fortune. Drivers of refuse trucks were making their ways in to offload while those who have offloaded were heading out.

A woman of about 70 years was spotted with a sac and when asked of her mission there, she answered that she came to collect some plastic containers to use. As if she knew more questions were coming her way, she quickly made her way out of the scene.

Another man who should be in his forties and seemed receptive was approached for a chat pointed to someone else and was only able to say his kind of business which is selling fried chicken to persons coming to do business at the dump site. Looking around, traders were seen hawking several items – food, provision, fruits, toiletries, cigarettes, local gin (Ogogoro) etc. It was gathered that some have their homes in some skeletal structures around the mountainous refuse heaps. There is even a level of hostility towards taking pictures around the site.

Ironically, the stench emanating from these heaps is less perceived inside than outside,

especially around Ketu and Ikosi neighbourhoods

Some of the residents and workers within the neighbourhood of the Olusosun dump site did not want to give their names for reasons unknown. However, one of them said: “The smell is usually very strong when it rains. The people I pity most are those who live in the estate close to the site. Though some people may say no one is forcing us to live here, government should help us to close the place as they promised some years ago.”

However, two years ago, former boss of Lagos State Wastes Management Authority (LAWMA), Mr. Ola Oresanya, announced that the site was going to be closed down and converted to a golf course, the reality many like Akinreti are waiting to see.

Figure 55: Waste Pickers on Landfill (Source: <http://www.dailymail.co.uk>)

History of the landfill

The area, according to Oresanya, was first identified and used by the Nigeria Military in the 1960/70s as a shooting range for condemned armed robbers and was later excavated and turned into a soil mining site to provide filling material for roads and

foundations of new building projects.

The landfill is traversed by a large burrowed pit which resulted from the long uncontrolled excavation/sand mining by most developers from all parts of the state. It was in 1992 that it was selected by LAWMA as landfill site and for refuse dumping.

The site, which is 42.7 hectares of land receives an average of 300 trucks of waste on a daily basis and weighed at the weigh bridge to ascertain the quantity of waste going into the landfill. 33.8 tonnes of kraft-back programme in partnership with LAWMA had been collected at N5,00 per kilogramme from the public while over 50 tonnes of waste nylon sachet had also been procured at N30.00 per kilogramme, LAWMA said.

According to LAWMA, the tons of waste generated by several households and firms in Nigeria can be linked to the world data bank report of 2012, which says that Nigeria is experiencing rapid urbanisation at an astonishing rate with the current population of over 168 million people. Lagos State, being one of the major cities in Nigeria with GDP per person at \$3,900, is projected to have an estimated population of over 20 million people. This seemingly envious position has severe impact on the provision of urban

Figure 56: Waste Trucks on Landfill (Source: www.independent.ng)

services such as waste disposal.

“Lagos generates about 3, 650,000 metric tons every year. It is estimated that about 7,000 cubic metres is disposed at the landfills on a daily basis. This is a poor use of resources which cost state government, commercial businesses and households’ huge financial resources. It also causes environmental damages with the controlled release of greenhouse gas emission such as methane CH₄ into the atmosphere,” says LAWMA.

On the dump site closure

Every dump site has its own expiry date, LAWMA current executive chairman, Mr. Olumuyiwa Adejokun told Independent Saturday at his Ijora Olopa office.

“It has been in existence for years before the residential areas sprung up. However, it is due to be closed down by 2017. It becomes even a problem if there is nowhere to take the refuse collected from different households and firms. LAWMA is trying its best to reduce stench.”

Energy efficiency and conservation from the site

Over the years, LAWMA said the waste management challenge has not only affected the aesthetics of the city but has posed a serious health challenge to the millions of its inhabitants. It believes Lagos has overcome the challenge as it is now moving ahead to use its abundant waste to create wealth and enhance the environment through waste product optimization from recycling, compost making, alternative energy from landfill gas recovery and utilization project.

Disposal/Landfilling treatment

Caring about their host communities, LAWMA stated its commitment to running healthy disposal sites with odour control and capping. “Our disposal sites are fortified with

atomizer for odour control purposes, while the environment is kept clean at all times. Dumpsites are being covered with laterites at regular intervals for proper sanitation and beautification.

“Regular tests are carried out on the land, air and water around the disposal sites while all standard procedures regarding the establishment and running of landfill sites are strictly adhered to.”

Recycling

The management authority said it converts organic wastes to composts at Odongunyan in Ikorodu while spent nylon materials and tires are being recycled and shredded at the Olusosun and Oshodi plants. Adejokun however called on individuals particularly the youths to consider going into waste recycling as a source of livelihood.

Appendix D

Tire Vulcanizers

A vulcanizer or *vorcah* like they're usually called, does any repair/maintenance work on vehicle tires. Their services range from: inflating low tires, checking tire pressure, sealing up punctured tires, replacing tire tubes, replacing tires with spares, selling used tires and other miscellaneous tire repair work.

They are very flexible too, if you have one on call, they can come meet you anywhere you get stuck with tire problems, and fix you up in no time.

Figure 57: Tire vulcanizer repairing a tire (Source: <http://www.nairaland.com>)

Vulcanizer stalls are very easy and quite inexpensive to setup. Your typical stall consist of a pumping machine, a spanner tool-set and a stool/shade for the vulcanizer to sit on. As a result, they're widespread and easily accessible for users.

As a result of these two points: cost and accessibility; Vulcanizers may continue to

remain relevant in Nigeria. As opposed to trying to disrupt that model, their service can be optimized by integrating technology to organize their service delivery & potentially make their services even more accessible and potentially cheaper. Creating some consistency across the price offerings, and quality of service delivery would be nice as well.

Figure 58: A typical Tire vulcanizer station (Source: <http://www.nairaland.com>)

Vulcanizers are so ingrained in the auto mindset in Nigeria, that folks go their whole lives never having to switch a spare tire or perform any tire related repair work on their vehicles. As opposed to disrupting them, enabling them will provide major benefits to both parties - Drivers and Vulcanizers alike.

Re-purposed Waste Tire as modular storage/display system

*Re-purposed Waste Tire as modular storage/display system
at the migration phase*

Re-purposed Waste Tire as modular wall/storage/display system at the migration phase

Re-purposed Waste Tire as modular wall/storage/display system at the framing phase

Appendix F

Thesis Defence Installation