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The Negative Impact of Bad Waste Management System on Environment (Lubumbashi as Case Study)

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ABSTRACT: African's countries encountering financial development expanded growth number of the population, and quick urbanization– waste the board has turned into a steady persistent issue for Africans. Supported by the dismissal of regular waste administration rehearses by ecological supplicants because of the desperate negative effect on the earth, this has made the transfer of Waste progressively hard.

For example, more than 60 percent of the population of every African nation lives in spontaneous settlements and this makes a waste gathering in such zones very hard. For the absence of a superior alternative, people are left to consuming and dumping their daily unit waste along waterways or streets. Maintainable Cities International has worked together with various networks based associations to help make practical waste management arrangements in these spontaneous settlements all around the city. Gatherings are entrusted with the household daily unit waste by stacking them in push trucks. Since the greater part of the family waste gathered is natural, this introduces an incredible open door for the networks gatherings to produce more yield by transforming the natural waste into amazing fertilizer that is sold to the urban cultivating network in the city. Local people associations are likewise organizing gatherings where the regions and the different local gatherings can share thoughts and practices just as talk about approach matters to make motivations, for example, long haul contracts, upholding family installments and making a database of occupants served. Universal waste management program has been working inseparably with the nearby individuals to oversee waste and fertilizing the soil program essentially in structure limit and archiving the advancement in order to duplicate the involvement in different zones in the city. The long haul objective is to see such gatherings develop into self-supporting organizations that will improve the administrations and produce benefits just as go about as network pioneers by making attention to waste recycling and other green living practices.

KEYWORDS: Africa, Lubumbashi, waste management program, community applying system,

I. INTRODUCTION

Truly, wellbeing concerns are the principle drivers of the waste arrangement. Be that as it may, issues identified with waste advanced together with the financial improvement and populace development in Africa. These days, the problem is not just lies in an increase in the amount of refuse yet in addition in the expanding intricacy of dealing with the waste' streams because of the assorted variety and synthesis of the trash created by the cutting edge society. In that specific circumstance, the example "generation, utilization, transfer" that won amid financial development isn't practical any longer. Urban communities around the globe as of now produce around 1.3 billion tons of waste every year and this esteem is relied upon to increment to 2.2 billion by 2025 (Hoonweg and Bhada-Tata, 2012). The expansion is foreseen to be the best in lower-salary nations. Identified with this is the yearly worldwide waste management cost which is required to increment from \$ 205 billion to about \$ 376 billion of every 2025, again with cost increments being most serious in low-salary nations. Notwithstanding costs increments, other worldwide negative effects of waste incorporate it being a huge wellspring of emanations of methane, an especially intense ozone-harming substance, from the natural portion of the waste stream. This effect is exacerbated by the way that more than 75 % of the waste produced comprehensively is land filled. The leach ate created from landfills is likewise a contaminant to surface and groundwater sources. Landfills are likewise wellsprings of flames and blasts, undesirable smells, vermin, mosquitoes,



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flies, dissipating of trash by scrounger winged animals and air contamination. Uncollected waste likewise adds to flooding, air contamination, and general wellbeing impacts. In urban communities in lower-salary nations, the waste management is generally a city's single biggest budgetary thing.

In African; case of Lubumbashi, Katanga, the Democratic Republic of the Congo, and Capital is commanded by the Local Government to give the executives waste management to all divisions of Lubumbashi City. Although, hard work had been done to oversee trash in the city are consistently being overpowered and disappointed by the regularly expanding population of city inhabitants, expanded dimensions of financial movement and diminished subsidizing from the local government. With an end goal to reduce this circumstance, Lubumbashi has contracted privately owned businesses to help it with the administration of strong waste gathering in order to improve the city's tidiness. Nonetheless, regardless of this, not exactly 50% of the all-out waste produced; assessed to be in excess of 3,500 tons of various kinds of daily waste, is gathered. The uncollected waste is ordinarily dumped in open regions, streams, open seepage channels and different territories out of reach to waste accumulation vehicles, hence making both an ecological and general wellbeing fiasco for the occupants of Lubumbashi in (June 2012); more than 65 % of the waste being created is living waste.

It simply means that the local waste produced is a crucial asset, whenever it well explore, can go far towards improving the jobs of the city's occupants. This is clear from an enormous number of sweepers recovering material from the waste that can be re-utilized/reused. Nonetheless, they regularly desert natural waste, which they view as being of low esteem. In any case, living waste is a very helpful asset. This waste could assume an exceptional job in future vitality supply, for the most part through thermos chemical, physicochemical, and biochemical changes just as ordinary burning. Report that the organic division of household waste created can give a chance to explore through the way toward fertilizing the soil, in this manner discharging imperative supplements to the dirt. Living waste is, in this manner, a significant potential hotspot for supplement reusing, particularly for urban cultivating which regularly requires a lot of supplements to supplant misfortunes from escalated cultivating. The primary test is to cause occupants in various urban areas in Africa to acknowledge natural waste as a high-esteem asset.

A. OBJECTIVES

The primary research is the examination methods for making living waste appealing as a significant asset in urban waste management, an example such as Lubumbashi, Congo as contextual analysis, with the point of contributing towards lightening the lasting test looked by Lubumbashi urban areas in overseeing urban waste. It would likewise encourage an increasingly complete comprehension of the angles influencing the ecological exhibition of the distinctive natural waste esteem ties with the end goal of creating methodologies to enhance them. The particular focus points of this exploration are:

- 1) To evaluate waste management rehearses in African urban areas compare to waste management in developed countries.
- 2) To understand people behavior throughout waste management
- 3) To assess the liking of a little scale, minimal effort and basic innovation that presents another esteem chain with the damage of the generation of living waste
- 4) To assess and think about the diverse management/recycling/living waste treatment advances utilizing the existence cycle evaluation system in order to decide the most reasonable innovation.

B. LIMITATION OF THE RESEARCH

Although this research was carefully carried out, there were some unavoidable limitations. Even though Lubumbashi is my city but it been some years now since I didn't step foot in Congo to have the actual situation of what is going on with the actual government. I started this project long ago before I travel abroad. Going from one country to another I have come to realize the culture difference, people behavior difference, and countries different policies. It makes it quite difficult to come up with a solution or a result when it comes to make some comparisons on how to deal with waste management. But I just generalize some similar common points that I have seen could possibly be comparable. Since this work is not done in the laboratories; it's quite difficult for foreign students in china to have a complete finish research since as a student(design student) holding the student visa a student is not allowed to do work or to have an official internship unless to have a special recommendation which is not easy to keep up. We can only have interviews, survey and discussions



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C. RESEARCH SAMPLE AND PARTICIPANT

This research was conducted on naturalistic observations, interviews, and questionnaires among Congolese students living abroad, their families' members who stay abroad or have traveled before. It all started in the Jiangsu province; Wuxi city in jiangnan university where I am student since 7 years now I have make interview with all the Congolese students present here; they have gave me giving their observation about waste management and the way it has been deal around this place. And they have put me contact with their families and friends for further research. Secondly I have made a survey about waste management which has been completed by the Congolese student's community living in china. In different provinces and cities. Their feedbacks have helped me to understand carious ways of seeing things and to make a smooth conclusion.

II. LITERATURE REVIEW

Living waste is considered as the typical and unavoidable yield of generation and utilization forms, this is why bad management isbecoming normal to household and has already impact so many people's behavior. Once people behavior and attitude is used to a certain ways of managing their waste it even makes life more difficult, however when they are ineffectively overseen, they possibly hurtful to the earth, wellbeing, and financial advancement waste management is in fact a noteworthy hindrance to different factor to reasonable improvement in most African urban communities because of different elements including high population development, quick urbanization, expanding financial action, expanding requirement for buyers products, and all the more significantly the absence of manageability waste the board procedures both at national and nearby dimensions, including absence of sufficient arrangements. The mix of these variables makes significant a noteworthy test for reasonable improvement of African urban communities' supportable arrangement in waste management will require an incorporated methodology through urban arranging framework, utilization of data and correspondence advancements. Living waste management is one of the essential administrations pulling in across the board consideration on the urban motivation of various African countries. In numerous African countries, extensive exertion is being coordinated towards the accumulation and transfer of waste, while different parts of a viable waste management framework are being disregarded. The association and arranging of open waste gathering and transfer administrations are as yet simple, bringing about restricted measures of civil strong waste being reused and recouped (Matete and Trois, 2008), bringing about recycling basically remaining a casual action. In high-pay nations, the waste management pecking order has been effectively used to deal with the waste created. Is it conceivable that the waste management chain of command can be useful in mitigating a portion of the difficulties right now being looked in the management of waste in African urban communities? This section contains an investigation of the circumstance in African urban communities dependent on the waste chain of command and discoveries from contextual analyses in different pieces of the world so as to perceive what exercises can be realized.

A. SERVICE DESIGN

As we know service design is the planning and organizing people, structure, correspondence and tools parts of service so as to improve its quality and the mutual action between a service provider and its users. In waste management case the service design play the role of studying people behavior according to their environment to educate people or train them on how to use the recycling from their home to the garbage; even on the road, school, hospitals and other working places in order we can be able to know in witch way we can enhance the existing waste management system; and to always be one step ahead controlling and preventing the situation for better use of waste management system.

III. METHODOLOGY

According to my research in China; contextual investigations were done to distinguish the elements impacting waste management, recycling projects, and waste and recycling information offices in open lodging domains. in the promotion of these goals, information was gathered from foreign students specially Africans students in china, I also make survey for student in Lubumbashi then chosen open lodging homes itemizing their game plans for waste and reusing, furthermore, the mentalities of the open lodging inhabitants toward recycling and their conduct concerning recycling were tended to amid field look into. The main raison for this research is: 1. understand waste management attitudes and behavior, 2.theory of reasoned action, 3. Waste management and human behavior, 4.environmental behavior.



A. OBSERVATION, INTERVIEW AND QUESTIONNAIRES

Several questions have been ask to foreign students in china specially; African students. Comparative bellow in table 1

TABLE 1. Questions about the awareness of waste management in two different countries

Questions	African student abroad	Home student
Is waste management here the same as in your home county?	almost	No idea
Do you think it a good idea that we focus more in recycling than trying to learn about people’s behavior throughout waste management?	yes We believe it a good and easy way to start a better waste management	yes In this context people’s behavior can even be another part of study, because it is such a huge work
The design signs on the dustbin do they have an impact on your recycling system?	A lot	Not much
Are you ready to change your behavior through the waste management? Is it necessary to compare the management system from one country to another?	Definitely. Comparing two countries always brings a positive challenge to the nation	Yes. But we think we should learn to except our way of recycling but just try and make it better
For a safe and clean environment could you increase public awareness about W.M	sure	always
From your own perspective what is the barrier to a good management in your own country?	Bad government	Bad government
Can you make a change in your community? Using better ways of recycling?	100% sure	No doubt

B. STUDENT QUESTIONNAIRE

The goal in this part was to make to compare the mindset between the two types of students; the Africans students in china and those in Africa. Students from both side were asked the same questions, simply because we wanted to push my understanding on different mindset to help me have idea on how we can write and also help others on the waste management behavior. This information was used in understanding student’s feelings toward waste management policy. From the results we have realized that both student have almost the same focus ant the hand. The results of this part is described below. (Figure.1, 2)

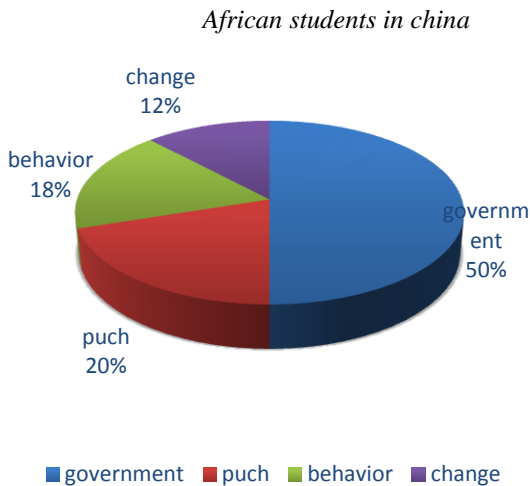


Figure 1. Africa students in china responses

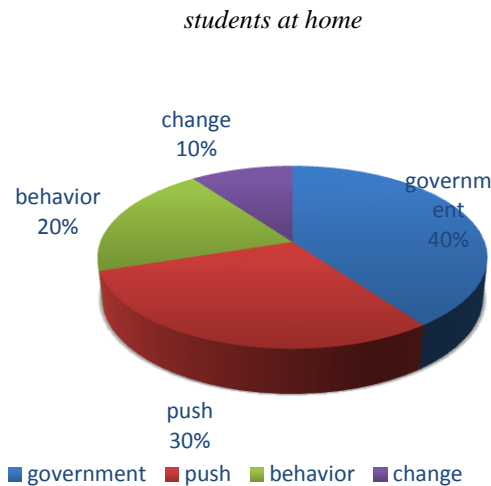


Figure 2. Students at home responses

C. CHINESE STUDENT& AFRICAN STUDENT’S QUESTIONNAIRE / EXCHANGE

In this particular case I went a little bit deep on the Chinese students; because I wanted to know what they think about the waste management in their country but specially in their school by asking them questions like;

- 1)Is the waste management in your school suitable for you?
- 2)Is there any complain or comment you can make about waste management in your school?
- 3)Is there a difference management ways between your home and your school?
- 4) Do you feel pressured by the government to do the recycling method?
- 5) Do you normally cooperate with the local government when it comes to better ways of waste management for clean and safe environment?
- 6) If you are ask to change the waste management system to a new one are you willing to add a personal idea or point of view?
- 7) What change can you make to the actual waste management system?

The same questions were asked to Africans students in china. We have found some similarities on their way of thinking and come out with a same conclusion even though it so hard to have 50% of the same argument from both side but this exchange was truly fruitful from both side. All the student have learnt a lot from each other in few hours.

Table 2 show few result of the discussion between Chinese and African student

African’s students	Chinese students
Waste management system in school is way better than in our school	Waste management in school is such a successful work in our school
Looking back from where we are coming from; we can’t really have a negative comment about the WM here	We are just following the step that have been designed for us and we are comfortable with that
The comparison is much bigger from home to school	Of course the no policies at home this is why we think there is a difference between WM from home and school
The government has a huge role to play in this matter but is not actually fulfilling his job	Yes, at first we feel pressured to do this in a correct way than it become a lifestyle
We wish we could have been pushed or guide to make sure we doing things in a correct way	Ye we do cooperate with the government by obeying and respect the all process
We are not actually afraid of change when it comes a better and clean environment	Change always take time and demand of lot of change.
What it takes	Out of idea about innovation

The figure (3, 4) will show the survey results on students feeling about waste management system.

- 1) African students have put more blames on the government for not putting more effort on the waste management system by not providing enough material such as dustbin all over the cities; also for not showing the effort of cooperating with the citizens. Even though the citizens are willing to change they need a push from the government.
- 2) In the other hand Chinese students are just comfortable with the actual waste management system and believe they are out of imagination for other method of waste management.

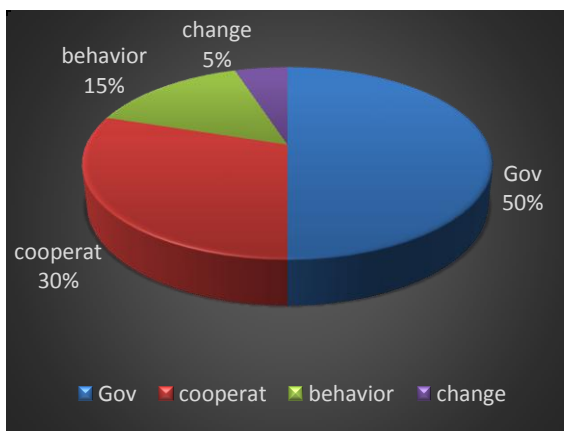


Figure 3 African students

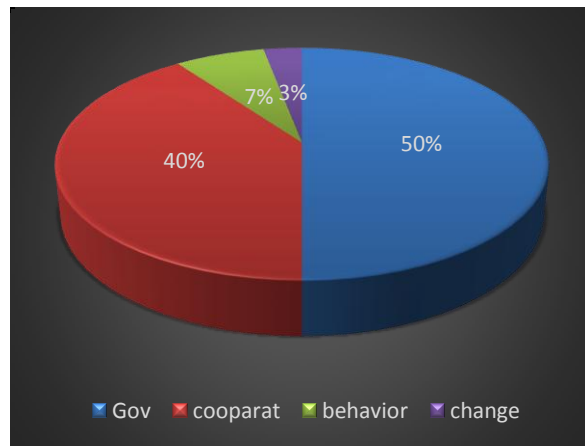


figure 4 Chinese students

IV. DISCUSSION

Waste Management is a fundamental open administration which possibly can impact or affect general well-being and natural quality in any human settlement. The issue establishes a significantly more noteworthy threat particularly in the quickly extending urban areas of Africa for the most part because of weights of uncontrolled urbanization, decreasing space for landfills and the hazard to general well-being is considerably increasingly articulated in the creating scene where well-being and sanitation framework is delicate and to a great extent broken (Demanya, 2001).

The poor street framework in some undeveloped regions makes it hard for ordinary waste accumulation vehicles, consequently, a lot of waste stay uncollected in the niches and corners making unhygienic conditions in the effectively discouraged condition. Poor management was the 60% of the exchange between Africans students. The government has failed to provide the necessary dispositive for better management, we all know that citizen's cooperation and good behavior play an important role in the recycling and better management but the lack of material makes the all system to collapse; from the discussion with the students we have realized that everyone is not happy about the way things have been done in Africa "Lubumbashi" they believe that with a lot of improvement from the government people are ready to change their behaviors a everyone wellbeing and safety.

In developed countries such as china so far it might be consider like a win-win situation between the government and the citizens ex of shanghai) some students receive price for proper management system; so it encourage more people to be active and learning how to manage their waste from their home. Despite the growth and fast technologies there is still people who are not aware of proper waste management, then some group of volunteers are put in place to help and guide those who are lack of knowledge

V. CONCLUSION

Many research has been done from different perspective; from developed to undeveloped countries but none of them have come up with a definitive result or conclusion. Because every country still in process of development; every country produce different material every day. Because we are living by example this is why we always try to compare waste management from one country to another, the reason for that is to learn and improve our own way of dealing with



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waste management according to our countries policies and regulations. The best we can do is to focus on the sequence that consist waste management chain starting from: mindset, household behavior, the cooperation with local people (neighbors) and to accept chance from the government if there is any for the best of our environment because safety always came first in our every days life

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