Assessment of Health-Related Environmental Risk Factors in Kibuli and Nabutiti Slums, Kampala, Uganda

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Abstract
This study was conducted using descriptive survey design involving mixed methods. Data collection instruments used were direct observations, focused group discussions, structured individual interviews and open-ended questionnaires. A total of 200 respondents formed the study's sample size sampled through Snowball and Convenient techniques. The main aim of the study was to assess those environmental risk factors with strong links to public health as such four factors were studied namely: housing, sanitation, water supply and food processing and storage. Descriptive Statistics and Content Analysis methods were used to analyze quantitative and qualitative data respectively. Results on respondents' demographic characteristics showed that the majority of the respondents was female (56.5%) and married (48.5%). Besides, 79.5% of them had no formal education or had either primary or secondary education only while 57% were within the age group of 15 – 45 years. Socio-economically, the majority of the respondents (65.5%) were poor earning less than 300,000 UGX a month while family sizes were relatively big. With regards to the risk factors studied, houses were found to be so congested and over crowded with poor ventilation. The state of sanitation was so bad with streets littered with refuse, drainages dumped with solid wastes and sewages flowing all over. Similarly, spring water was the major source of water supply for majority of the residents while water is stored in unhygienic conditions. Although food processing was found to be relatively alright, food storage facilities were issues of great concern. Most prevalent diseases included malaria, diarrhea, sexually transmitted diseases among others. Based on these findings, it was concluded that considering the poor socioeconomic status of the majority of the residents coupled with the poor and deplorable infrastructural conditions of the settlements, the general public health is at stake. Thus, it was recommended that, government should as a matter of urgency intervene on very sensitive issues such as portable water supply and sanitation in order to prevent further deterioration in the public health status.

Keywords: Health; Environmental Risk Factors; Kibuli; Nabutiti.

Introduction

Possibly, due to differences in socioeconomic status, people tend to live in different types of settlements some of which especially the slums might be so hazardous to the human health. A slum is a highly populated urban residential area consisting mostly of closely packed, decrepit housing units in a situation of deteriorated or incomplete in infrastructure, inhabited by primarily by impoverished persons (UN-habitat, 2007). While slums differ in size and other characteristics, most lack reliable sanitation services, supply of clean water, reliable electricity, law enforcement and other basic services. Slum houses vary from shanty houses to professionally built dwellings which, because of poor quality construction or provision of basic maintenance, have deteriorated. Although slums are predominantly found in urban regions of developing countries, they are also available in some developed nations. According to UN-Habitat, around 33% of the urban population in the developing world in 2012, or 863 million people, lived in slums (UN-Habitat, 2013). The proportion of urban population living in slums in 2012 was highest in Sub-saharan Africa (62%), followed by Southern Asia (35%), Southeastern Asia (31%), Eastern Asia (28%), Western Asia (25%), Oceania (24%), Latin America and the Caribbean (24%) and North America (13%) (Benjsmin *et al., 2013*,). The world's largest slum city is found in the Neza-Chalco-Ixtapaluca area, located in the state of Mexico.

The proliferation of slum settlements which arise as a result of poorly planned or unplanned urbanization patterns represent a major public health challenge. With more than 828 million people almost one third of the world's urban population living in slums where environmental risk factors pose enormous threats to human health, urgent attention with regards to health-related issues become necessary. Although it has been reported that from 2000 to 2012 the global proportion of people living in slums decreased from 39% to 33% of the urban population, however, the absolute number of slum dwellers grew over this period from 700 million in 2000 to 863 million in 2012 (WHO/UN-HABITAT, 2010).

Background to the Study

The environment is a major determinant of health, estimated to account for almost 20% of all deaths in the WHO European Region (www.who.int). In 1989, concerned about the growing evidence of the impacts of hazardous environment on human health, WHO/Europe initiated the first ever environment and health process, towards a broad primary prevention public health approach, and to facilitate intersectotral policy making (www.who.int). The urban setting as we know it today is a complex and dynamic environment that has a profound impact on the health of the human community. Three interrelated characteristics of urbanization make it different from what it was in the past: 1) the rapid rate of urban growth and its effect on municipal governments; 2) the upsurge in poverty and its effect on the urban economy; and, 3) the proliferation of slums and their impact on the urban environment and the environment's impact on slums. The United Nations Expert Group at a meeting held in Nairobi in 2002 operationally defined a slum as a human settlement that has the following characteristics: inadequate access to safe water; inadequate access to sanitation and other infrastructure; poor structural quality of housing; overcrowding; and insecure residential status (Lee W. Riley, Albert I Ko, Alon Unger and Mitermayer G Reis, 2007). These attributes are associated or linked with ill-health conditions. Currently, these characteristics describe communities that comprise 43% of the combined urban populations in all developing countries, and 78% of the urban population in least developed countries. Thus, in many developing countries, life in slum settlements has already become the norm of urban human existence. Urban slums, like refugee communities, comprise a social cluster that engenders a distinct set of health problems. With 1 billion people currently estimated to live in such communities, this neglected population has become a major reservoir for a wide spectrum of health conditions that the formal health sector must deal with (Lee *et al.,* 2007).

Continued neglect of ever-expanding urban slum populations in the world could inevitably lead to greater expenditure and diversion of health care resources to the management of end-stage complications of diseases that are preventable. The impact of environmental risk factors on health are extremely varied and complex in both severity and clinical significance. Many factors influence the health of a population, including diet, sanitation, socio-economic status, literacy, and lifestyle. For example, the effects of environmental degradation on human health can range from death caused by cancer due to air pollution to psychological problems resulting from noise. Contrary to what is obtainable in refugee camps, health problems in slums are not well attended to by the authorities concerned. Hence, health problems in slums are usually attended to very lately as such; the formal health sector inevitably deals with the severe and end-stage complications of these diseases at a substantially greater cost than what it costs to manage non-slum community populations. Because of the informal nature of slum settlements, and cultural, social, and behavioral factors unique to the slum populations, little is known about the spectrum, burden, and determinants of illnesses in these communities that give rise to these complications, especially of those diseases that are chronic but preventable (Lee *et al.*, 2007).

In year 2000, the United Nations Millennium Declaration pledged to tackle the challenge of setting specific goals of achieving "significant improvement in the lives of at least 100 million slum dwellers by the year 2020" (Lee *et al.,* 2007). This historic declaration formally recognized the existence and need to improve the lives of a large group of people living in places in what are likely to become central to this century's most expensive health crisis. Today, nearly 1 billion people, or 32% of the world's urban population are estimated to live in slums (UNHSP, 2003). Has been estimated that in the next 30 years this population will increase to about 2 billion (UNHSP, 2003). Thus, ensuring healthy conditions among millions of slum dwellers in different parts of the world is a significant issue of concern to governments.

Statement of the Problem

Uganda is experiencing a high rate of urbanisation exceeding 5% per annum (www.academia.edu). This is attributed to the high rural urban migration rate, the high natural population growth in urban areas, extension of the boundaries of urban centres and uncontrolled growth and expansion of trading centres over time. However, the urbanisation process is taking place in a haphazard manner with no control and regulation due to inadequacies in planning, management and provision of basic urban infrastructure and services in the face of the high

urbanisation rates. The growth of slums has become a natural indicator of the process of the country's urbanisation. It is essential that at least 60 percent of the urban population lives in slums (www.academia.edu). Reasons for the proliferation of slums in Uganda was attributed to high urbanization rate, urban poverty, lack of urban planning and development control, poor management of privatized urban services among others.

Kampala city has got 57 slum settlements spread in the 5 divisions of Kampala central (8%), Kawempe (22%), Nakawa (20%), Rubaga (25%) and Makindye (25%). In 2008, the Uganda Ministry of Land and Urban Development defined slum as a heavily populated urban area that is characterized by substandard houses, social and economic isolation, irregular land ownership, low standards of sanitation, limited access to basic infrastructure and social services. In Kampala slums, unemployment is highest among the youth (18 to 30 years of age) (www.drt-ug.org). At present, Kampala city has got over 4 million slum dwellers living in Kampala district representing about 60% of the city's population with Kibuli been rated as one of the 10 top slums in Kampala district (www.gorillatreksafarisafrica.com).

Population of people living in slums in Uganda was put at 53.6% in 2014, according to the World Bank collection of development indicators, compiled from officially recognized sources (www.tradingeconomics.com). Overcrowded, substandard housing typical of many slums facilitates the spread of infectious diseases, such as tuberculosis, hepatitis, dengue fever, pneumonia, cholera and malaria. The lack of structurally sound, climate-adapted and ventilated homes further puts the health of slum dwellers at risk of climate change-related extreme weather including heat waves, cold or storms. Besides, poor sanitation and lack of access to safe food and water also do contribute to high prevalence of diseases in slums. Slum communities are defined by poverty, low income, inadequate living conditions and sub-standard facilities. Moreover, slum areas are often left out of major city networks for access to health-care services. Unplanned urban development exacerbates non-communicable disease risks related to outdoor and indoor air pollution. Furthermore, urban sprawl is associated with road traffic injury and physical inactivity-related risks including obesity.

It is evident that in many slums in Kampala, the sanitation situation is very poor, houses were poorly built with no ventilation, waste management practices were also worrisome, potable water supply is lacking and drainage systems have deteriorated. In addition, food processing methods were also very unhygienic, stagnant waste waters which serve a very favourable breeding ground for mosquitoes are so common and toilet systems were also unhygienic. Consequently, reports of disease manifestations have become so rampant. Most commonly reported diseases in these slums attributable to poor environmental conditions include malaria, diarrhea, respiratory and skin diseases, Sexually Transmitted Disease (STDs), gastrointestinal problems among others. For instance, in a study by the Kampala Tugende baseline survey (2014), 68.5 % of respondents in slums had had at least one of their household members' ill in the last two months. Possibly, due to the rampant cases of disease manifestations in many slums, the mortality rate might also be high. For instance, the most common diseases prevalent in Kampala slums include HIV, Malaria, diarrhea, STDs, Cough, measles and diabetes (www.askyourgov.ug). Despite efforts being made by the Kampala City Council Authority (KCCA) and other organisations such as the Kampala Slum Transformation Initiatives (KASTI), the situation of slums in Kampala is still a matter of concern. KASTI is a loose consortium of Comic Relief Funded initiatives aimed at promoting joint engagement of duty bearers and learning together. The partners include Lutheran World Federation (LWF), Development Research and Training (DRT), ACTogether, Plan Uganda, Uganda Youth Development Link (UYDEL), Shelter and Settlement Alternatives: Uganda Human Settlement (SSA/UHSNET), UCA, Water Aid and Country Integrated Development Initiative (CIDI).

Thus, it is against this background that this study was conducted with the sole aim of assessing those environmental risk factors that have links with health conditions in two popular areas of Kampala viz Kibuli and Nabutiti. Variables examined were housing, sanitation, water supply and food processing and storage methods.

Study Area

The study was conducted in two slum settlements of Kibuli and Nabutiti all in Makindye division of Kampala District much more characterized by poor sanitation as well as densely populated areas with compacted and poorly built houses. Makindye Division is one of the five divisions that make up Kampala, the capital of Uganda. The city's other four divisions are: Kawempe, Rubaga, Kampala Central and Nakawa Divisions. The division comprises the central business district of the largest city in Uganda and includes the areas of old Kampala, Nakasero and Kololo. It also incorporates low income neighbourhoods in the city including Kamwookya, Kisenyi and Kampala's Industrial Area. Coordinates of the division are $0^{0}19'00.0"N$, $32^{O}35'00.0"E$ (Latitude:0.316667; Longitude: 32.583333). The division comprises about 20 parishes some which include Bukesa, Civic Center, Industrial Area, Kagugube. Kamwookya, Nakasero, Nakivuvo among others.

Materials and Methods

The study which was conducted in August- September, 2019 employed the Descriptive Survey design while data collection methods adopted included Direct Observations, Focused Group Discussions, Structured Individual Interview as well Open-Ended Questionnaires. A total of 200 respondents formed the study's sample size drawn from the two study areas through Convenient and Snowball techniques. Two specific objectives guided the study viz; examination of environmental risk factors with link to human health in the areas and assessment of commonly occurring ill health conditions attributable to environmental degradation. Variables studied included housing, sanitation, water supply, and food processing and storage methods. Data on demographic characteristics of the inhabitants was also collected. Quantitative data was analysed using Descriptive Statistics while qualitative data was analysed using Content Analysis method.

Results and Discussions

Table 1: Demographic Characteristics of the Respondents

Variables	Frequency	Percentage
Gender		
Male	87	43.5
Female	113	56.5
Age		
15-25 Years	22	11.0
26-35 Years	34	17.0
36-45 Years	58	29.0
46-55 Years	56	28.0
56-65 Years	12	6.0
Above 65 Years	18	9.0
Marital Status		
Married	97	48.5
Single	65	32.5
Cohabiting	38	19.0
Level of Education		
None	53	26.5
Primary	64	32.0
Secondary	42	21.0
Diploma	21	10.5
Bachelors	20	10.0
Post Graduate	0	0
Occupation		
Working with private sector	34	17.0
Civil Servant	23	11.5
Maison	08	4.0
Driver	28	14.0
Carpenter	12	6.0
Trader	39	19.5
Boda Boda	34	17.0

Others	22	11.0
Family Size		
1-5	67	33.5
6-10	93	46.5
11-15	23	11.5
16-20	12	6.0
Above 20	05	2.5
House Ownership		
Self-owned	75	37.5
Renting	96	48.0
Family owned	29	14.5
Average Monthly Income		
< 100,000 UGX	13	6.5
100,000-200,000 UGX	54	27.0
201,000-300,000 UGX	64	32.0
301,000-400,000 UGX	50	25.0
401,000-500,000 UGX	12	6.0
>500,000 UGX	07	3.5

Demographic Characteristics of the Respondents

As indicated in the table above, the majority of the respondents (56.5%) were female. This could have arisen because of the fact that at the time of the visits majority of the men were not home possible in their working places. This is typical of many African settlements where men are known to be the bread winners of the family. Similarly, majority of the respondents were also married (48.5%) while another 32.5% were singles. A total of 19.0% stated that they were cohabiting. Thus, with only 19.0% of the respondents being singles, there is every possibility that the respondents were likely to have good number of kids residing along with them as revealed in the table above that 64.0% of them had families comprising of between 6 – 20 members. Another 2.5% of the respondents claim to have family sizes of more than 20 members.

Educationally, 26.5% did not have any formal education while another 32.0% and 21.0% claimed to have attended primary and secondary schools respectively. Only 10.5% and 10.0% stated that they had obtained diploma and Bachelors' degree certificates. These statistics implies that the majority of the residents of these areas was not well educated hence, this could have a lot of impacts on how the residents live their lives especially with respect to attending to environmental and health related issues. In addition to that, a good number of the respondents (48.0%) live in rented houses with only 37.5% of them owning the houses they live in. This implies that, majority of the residents could not upgrade the standards of these houses or make any corrective transformations in order to make them more inhabitable.

Economically, these areas could be termed as poor neighborhoods because only 6.0% of them claimed to earn between 400,000-500,000 UGX monthly while another 3.5% earn more than 500,000 UGX a month. However, the majority of them (84%) earn only between 100,000-400,000 UGX monthly. Considering the family sizes obtainable in these areas, the monthly family income might not be enough to cater for the family's basic needs so, poverty could be said to be having a toll on these residents. Possibly, occupational profile of the respondents could to some extent explain the socioeconomic status of the respondents.

Housing

Generally, houses were so dilapidated and congested with no enough spaces therefore leading to densely populated buildings competing for non-existent space with garbage-strewn paths and roads. The social, health and psychological implications of densely populates places have been well established. According to the World Health Organization, for communities, inadequate shelter and overcrowding are the major factors in the transmission of diseases with epidemic potential such as acute respiratory infections, meningitis, typhus, cholera, scabies, etc. Outbreak of diseases is more frequent and more severe when the population density is high

(www.who.int). Although family sizes were found to be big (64% having 6-20 family members) numbers of rooms in the houses visited were relatively not enough for the family members. In some instances, six family members share a single room. More than 90% of the houses lack proper ventilation. Most rooms had only one small window located on the same side with the doors. The health implication of lack of ventilation especially in over-crowded rooms cannot be over emphasized.

A good number of the houses have stagnant water around them in some instances smelling badly. These bodies of water serve as dumping places for refuse to many of the residents. Such points are good breeding places for mosquitoes. However, a good number of the houses use mosquito nets at nights. Pit latrines are the most common types of toilets in the houses. Most of these toilets are infested with cockroaches and are left uncovered. In addition, majority of the houses were infested by rodents and bed bugs which the residents claim to control by fumigation and the use of other chemicals. The use of chemicals to kill rodents especially in overcrowded houses has a lot of health implications. Due to the fact that most of the houses were not well plastered, the rooms were always dump thereby creating a favourable condition for infestation by other insects. Worthy of mention is that, majority of the respondents (48%) live in rented houses which are not well cared for by their owners. Thus, they have to accept all what is obtainable as it is as majority of them (65.5%) cannot make the necessary renovations or build their own houses because of poverty earning not more than 300,000 UGX a month.

Figure 1: Scene of a poor housing

Sanitation

Generally, as it is in many other slums, the state of sanitation in Kibuli and Nabutiti was not encouraging. Perhaps due to lack of enough places designated places for dumping refuse, majority of the residents (54%) dump refuse in drainages, in stagnant waters, on the streets and by road sides as a result of which most of the roads in these areas are littered by refuse full of patrolling flies. Consequently, drainages were blocked by heaps of refuse thereby leading to serious flooding during rainy seasons. Obviously, health implications of contaminated flood water are so enormous. For instance, stagnation of contaminated water for long periods of time can eventually affect underground water and majority of the residents heavily depend on spring water as their main source of drinking water. There is also an increased risk of infection of water-borne diseases contracted through direct contact with polluted waters, such as wound infections, dermatitis, conjunctivitis, and era and nose and throat

infections. Similarly, the major risk factor for outbreaks associated with flooding is the contamination of drinking water facilities resulting in water borne diseases such as typhoid fever, cholera, leptospirosis and hepatitis A.

In addition, most houses lack proper outlets for sewages so, waste water is thrown onto the streets or into already blocked drainages. Open defecation was found to be very common in these areas although most of the respondents claimed that kids were normally incriminated in the act. People usually defecate in open spaces within the house premises, at refuse dumps, in drainages or on the streets. Open defecation is the emptying of bowels in the open without the use of properly designed structure built for handling of human waste such as toilets. Open defecation is particularly associated with rural and poverty-stricken regions of the world, especially Sub-Saharan Africa and Asia. Certainly, this act poses numerous threats to public health through water-borne diseases, vector-borne diseases, compounding the problem of disease exposure as well as malnutrition in children while its effects on the environment may include contamination via microbes, visual and olfactory pollution, air pollution etc. According to some respondents, open defecation is fuelled by water shortages, large family sizes and abject poverty. Besides, due to the topography and poor drainage systems, rain water stagnates in many places sometimes for days creating a favourable breeding hub for mosquitoes.

Figure 2: Drainage turned into a refuse collection site

Water Supply

Inarguably, one of the most important environmental health risk factors is the source of potable drinking water. The connection between drinking water and public health cannot be over emphasized. In the two areas studied, spring water was found to be the major source of drinking water for the majority of the residents (62%) although some respondents claimed that they do have access to tap water while others do harvest rain water. Spring is a water resource formed when the side of a hill, a valley bottom or other excavations intersects a flowing body of ground water at or below the local water table, below which the sub surface material is saturated with water. A

spring is the result of an aquifer being filled to the point that the water over flows onto the land surface. Although naturally occurring spring waters are pure and safe for human consumption, human activities can have significant effect on such waters. Thus, with uncountable number of refuse dumps, polluted stagnant waters, open defecation and constant flooding during rainy season, purity of the spring water upon which majority of the resident rely upon cannot be guaranteed. Similarly, for the fact that most of the points where spring water is fetched serve as playground for kids, collected water can also be contaminated.

Besides, about 70% of the residents stated that the daily supply of water is not enough and this worsens during sunny days and dry seasons. According to the respondents, the act of fetching water mostly carried out by children affects their productivity especially with regards to school attendance. Consequently, due to the insufficient daily water supply, residents claim to store water for their daily usage. Water is being stored in jerry cans, buckets, clay pots and tanks. However, close observation of the hygienic nature of most of the water storage facilities could make one raise eyebrows. Surprisingly, only 34% of the respondents stated that they do treat their drinking water mostly through boiling. Moreover, because majority of the residents (65.5%) were poor earning not more than 300,000 UGX a month coupled with large family sizes, they could not afford to buy water for the use of the family and had to heavily rely on the spring water provided by mother nature. Meanwhile, water shortages in communities always lead to poor sanitation.

Figure 3: People fetching spring water

Food Processing and Storage

Inarguably, food processing and storage techniques are closely linked to people's health conditions. Unhygienic eating habits can cause serious health problems. The most popular fuel among the residents was charcoal while few use kerosene and majority of the houses lacked kitchens. Hence, foods are usually cooked in open spaces sometimes in filthy places using sauce pans without good covers. With garbage littering most of the roads, drainages full of wastes and open defecation, cooking in such open spaces might have serious health implications because it could be very difficult to prevent contact with flies and other disease vectors. Usually, kids eat outdoors on dirty streets full of patrolling flies. Similarly, the act of keeping cooked food over night for later use

could also lead to food poisoning. A situation warranted because majority of the houses could not afford refrigerators for food storage. Moreover, cooking utensils and plates left unwashed for long periods of time sometimes over-night can be good sources of disease conditions if not well taken care of.

On the other hand, although majority of the houses did not have much foodstuff to store, generally, food storage facilities and the condition in which foodstuff are stored were not encouraging. Some respondents claim to store foodstuff under the beds, cupboards, baskets etc. Although these storage facilities do not pose any health threat, the fact that majority of these houses were infested by rodents, insects and other possible vectors, contamination of stored foodstuff by these vectors can be inevitable. According to Hamidi (2018), most of the foods linked to food infection or intoxications are from animal sources. He further stated that, pathogens have been found to enter the food supply through animal carriers, animal hosts or improper handling procedures. The major groups of pests affecting the food products include rodents, birds, reptiles, insects and stored product insects such as weevils, moths et c.

General Health Conditions

With regards to general health condition of the residents, 56% of the respondents agreed that every house experience sick health condition among family members once every month. A critical look at the table below which presents the most common disease conditions in the area shows that most of the diseases were foodborne caused by poor hygiene and sanitation. People living in areas with poor sanitation and hygiene conditions are more prone to illnesses. Many diseases are associated with inadequate water resources, sanitation and hygiene (Messias, 2001 cited in Karanja and Ng'ang'a, 2008)

Table 2: Most common ill health conditions in the areas. Multiple response (n = 200)

S/N	Disease condition	Frequency	Percentage
01	Malaria	191	95.5
02	Typhoid fever	104	52.0
03	Diarrhea/Dysentry	122	61.0
04	Respiratory tract infections	98	49.0
05	Alcoholism	97	48.5
06	Skin diseases	107	53.5
07	Abortion related problems	15	7.5
08	STDs	77	38.5

Unsurprisingly, Malaria leads the list of the prominent ill health conditions occurring among residents of these areas with 95.5% response followed by Diarrhea (61%), skin diseases (53.5%) and Typhoid fever with 52%. Obviously, with the poor sanitation and lack of enough water supplies obtainable in the areas studied, frequent occurrence of these diseases is inevitable. Respiratory Tract Infections (49%) could not also be avoided in such settlements due to the overcrowded and very poor housing structures in which the people live. Alcoholism and Sexually Transmitted Diseases (STDs) were also found to be some of the common diseases in the slums. In most instances, high rates of STDs in an area reflect reckless and unprotected sexual activities among the people. Although alcoholism may not be described as a diseases condition per say, the residents listed it as a disease condition claiming the fact that it seriously affects socioeconomic status of many families. Besides, it was gathered that due to alcoholism many residents have suffered ill health conditions which sometimes led to deaths. Similarly, although very few respondents cited it as a disease condition of concern (7.5%), abortion related problems could lead to serious ill health conditions especially if not carefully handled or if handled by non-experienced personnel. According to the respondents, such abortion related problems arise when parents try to abort unwanted teenage pregnancies mostly caused by poverty.

Conclusions

In conclusion, bearing in mind the poor socioeconomic status of the majority of the residents of these settlements coupled with the poor and deplorable infrastructural conditions, a lot of health-related environmental risk factors will continue to manifest with devastating impacts on the people's general health conditions. Most importantly, the poor state of sanitation, deteriorating housing structures and scarcity of potable water supply will continue

to wreak havoc on these communities by disposing them to a number of hygiene related ailments such as Malaria, typhoid fever, diarrhea, and respiratory diseases and so on. Besides, abject poverty that rages in these communities could also lead to the escalation of undesirable social vices such as prostitution, alcoholism, drug abuse, theft etc. all of which could have a significant relationship with the people's health.

Recommendations

Basically, people tend to live in slums because of poor socioeconomic status majority of whom living in unimaginable and miserable lives. In order to better the conditions of people living in slums, there is every need for a general improvement in infrastructure. However, this is beyond the people's ability because most of them live in abject poverty. Thus, it is recommended that:

i- Government should provide sufficient potable water supply in these areas in order to minimize the occurrence of water borne diseases and improve sanitation.
ii- Constant clearance of drainages and other water ways should be embarked upon in order to prevent flooding.
iii- Special refuse collection sites should be made available in order to stop the indiscriminate dumping of refuse in the areas.
iv- Although it may not be feasible for the government to provide befitting houses to all residents of these areas, government should empower the people economically so that they can take up these tasks themselves.
v- In order to do so, government should provide entrepreneurial skills to the many of the unemployed youth so that they can be financially strengthened to take care of their families.
vi- Government and other stakeholders should organize awareness raising campaigns in these areas in order to enlighten the residents on the need to maintain good sanitation in order to abstain from ailments such as Malaria and diarrhea.
vii- Now that poverty seems to be one of the most important factors contributing to the lots of problems in these settlements, government should empower the people by all means possible and broaden their skills so that they can be financially buoyant to live a happy and healthful live.

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