Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Urbanisation And Environmental Degradation. A Case Study Of Kasenyi Landing Site, Entebbe Municipality

Twine Ian Tindimwebwa[1], Karyoko Yaweri[2]
1, 2 Metropolitan International University

Abstract

Urbanisation was a rapidly growing phenomenon in many developing countries, particularly in Sub-Saharan Africa, where expanding urban populations exert increasing pressure on natural resources and the environment. This study examines the relationship between urbanisation and environmental degradation, using Kasenyi Landing Site in Entebbe Municipality as a case study. Kasenyi Landing Site, located along the shores of Lake Victoria in Entebbe Municipality, Wakiso District, has experienced significant population growth due to fishing activities, trade, tourism, and related economic opportunities. Using both qualitative and quantitative research approaches, data were collected through questionnaires, interviews, observations, and review of secondary documents from Entebbe Municipality and environmental agencies. The findings reveal that rapid urban growth without corresponding infrastructure development has significantly contributed to environmental degradation, threatening public health, biodiversity, and the sustainability of fishing activities in the area. The study concludes that while urbanisation has improved livelihoods and increased economic opportunities for residents of Kasenyi Landing Site, it has also resulted in serious environmental consequences. It recommends strengthening urban planning mechanisms, improving waste management systems, enhancing community environmental awareness, enforcing environmental regulations, and promoting sustainable development practices. The research contributes to a better understanding of the environmental implications of urbanisation in rapidly growing urban fishing communities in Uganda and offers practical recommendations for policy makers and local authorities

Keywords: Urbanisation, Environment, Degradation and Kasenyi Landing Site

Background of the study

Urbanization is one of the most powerful and visible anthropogenic forces on Larth. Since the second half of the twentieth century, the world has experienced the fastest rate of urbanization particularly in developing countries (Anderson, 2008). Rapid Urbanization is the increasing number of people living in urban areas faster than usual. It can also be defined as increasing concentration of the population in urban areas and a transformation of land use and society to a metropolitan pattern of organization (T. williams, 2005). It predominantly results in the physical growth of urban areas, be it horizontal or vertical. The United Nations projected that half of the world's population would be in urban areas at the end of 2008 and by 2050 it is estimated that 64. 1 % and 85.9% of the developing and developed world will be urbanized respective(Jackline et al., 2023).

Rapid urbanization is influenced by rapid industrialization, high birth rates in rural areas, rural exodus, over population and overcrowding in urban sector which leads to problems like development of shanks and slumps land, stream and

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

air pollution(Julius & Kaazara, 2025). greenhouse gas emission sporadic outburst of fire, random waste disposal deteriorating urban road network, collapse of bridges and houses, landslides and urban flash flooding are some of the problems faced (World bank, 2002). According to United Nations Environment Programme (UNEP, 2000), these environmental health problems in developing countries are now exacerbated by emerging problems of industrial and agricultural pollution which are also increasing due to rapid urbanization.

The global proportion of urban population rose dramatically from 13% (220 ni II ion in 1 900 t
29% (732 million) in 1950, to 49% (3.2 billion) in 2005) and this figure is projected to rise to
60% (4.9 billion) by 2030. In USA, since the beginning of the industrial revolution 300 years ago, rapid urbanization has increased day by day. The United States underwent a dramatic rural urban shift in the nineteenth and early twentieth centuries. Urban areas between Boston and Washington D.C have merged into nearly continuous Megacities sometimes called Bos-Wash, containing about 35 million people.

In Zambia, one of the most urbanized countries in Africa, water-borne diseases such as cholera typhoid and dysentery are prevalent due to lack of access to clean water and bad sanitation. In
Malawi, the urban population increased from 5% in the 1 960s to 13% in 1995. The urban growth rate is currently estimated at 5.6% annually (World Bank, 2002). The poor are often cramped in inadequate housing along flood plains or other areas that are vulnerable to pollution because that is the only place where they can afford to rent or build accommodation in urban parts of Malawi, South Africa, Zambia and Zimbabwe (World Bank, 2002). In Uganda, Kampala capital city is characterized by a series of low lying valleys with lint hills.
These hills are surrounded by a network of wet valleys which are covered by papyrus swamps
(NEMA. 1992). Many of the papyrus swamps have been reclaimed and developed because of poorly planned rapid urbanization process therefore Kampala currently accommodates 40% of all urban residents in Uganda.

It was originally built on seven hills, but today encompasses 46 hills. This change in land-use natural vegetation with only a small population to a city of millions of people has exerted pressure on the environment. The major causes of environmental degradation in Kampala include, but are not limited to, poor solid waste collection, inadequate facilities and sanitation, drainage, increasing traffic and industrial pollution and urban agriculture (MT.HUD.1 993). However, in Mbarara, rapid urbanization is blamed for the poor solid waste management.

Problem statement.

According to UBOS (2010), Entebbe's population had increased to 83,700. Rapid urbanization goes with industrialization, modernization, and technology which lead to the key factors affecting the environmental quality. Population increase, waste generation due to increased production and consumption are some of the problems affecting the environment. Formerly, Entebbe had more green space within the municipality than today(Regan et al., 2024).

Received: 14.04.2026 Accepted: 18.04.2026 Published on: 30.04.2026

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Lake Victoria, the main source of water to the municipality used to provide clean water that would not necessarily need expensive treatment. Currently. The National Water and Sewerage Corporation (NWSC) has got a good job to treat water expensively before supplying to people(Emmanuel et al., 2023). There was much free and fertile land in Entebbe which is different today. The land was encroached on by developers, where buildings and roads were constructed. There is air pollution by the many vehicles moving to and from industries(Yoder, 2019). Land has also been polluted by wastes like polyethene bags (kaveeras). Construction debris, organic matter and papers among others which are not well managed. Noise is also evident and affects people especially near streets, workshops, and industries.

However, management strategies like treatment of wastes, laws and policy formulation have been practiced though not effectively. This research is meant to assess the impact of urbanization on the overall environmental degradation hence forth make recommendations according to the findings obtained illustrating how best sustainable development can he achieved in Entebbe(Sarah et al., 2024).

General objective

To examine the impacts of urbanization on environmental degradation in Entebbe municipality.

Specific objectives

i. To identify the factors leading to urbanization in Entebbe municipality.
ii. To determine the effects of urbanization on environmental resources in Entebbe municipality.
iii. To find out the conservation measures being used to ensure better environmental quality in Entebbe municipality, kasenyi landing site.

Research questions.

i. What are the factors leading to rapid urbanization in Entebbe municipality?
ii. What are the effects of urbanization on the environmental resources?
iii. What conservation measures are being used to ensure better environmental quality?

Scope of study.

Geographical scope

Entebbe is a city in Central Uganda. Located on a Lake Victoria peninsula, approximately 36 kilometres (22 mi) southwest of the Ugandan capital city, Kampala.[3] Entebbe was once the seat of government for the Protectorate of Uganda prior to independence, in 1962. The city is the location of Entebbe International Airport, Uganda's largest commercial and military airport. The area is chosen because it approximately near to the researcher

Content scope

This research focused on identifying factors the impact of urbanization, determining how rapid urbanization affects the environmental resources and finding out conservation measures being used, to determine the relationship between urbanization and environmental quality.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Time scope

The study was carried out for a period of three months that is from November 2022, to January 2023. The time scope for the data that formed this study was between 2015 and 2021. According to the Uganda Bureau of Statistics (2014) this was the period the town council experienced high rate of urbanization and environmental degradation.

Significance of the study.

This research acted as a base line to all academicians and future researchers, developers and politicians who might wish to use it. It has helped me to get more knowledge about urbanization and environmental quality as it is on the ground and be able to make conclusions and recommendations. It provided more knowledge to all other interested readers about the relationship between rapid urbanization and environmental quality. Gaps left for the future researchers clearly identified.

This research may help the developers to identify how their activities affect the environment. It also helps them to identify some conservation measures that could be used to conserve their environment and/or following the set environmental procedures like Environmental Impact Assessment (EIA).

It might help the politicians to realize how most of the developing activities influenced and/or owned by them affect the quality of the environment. This also helps them to know the importance of good environmental management and therefore influence conservation through passing and implementing environmental conservation laws and/or by-laws.

Literature Review

A review of secondary data indicated that rapid urbanization had been driven by multiple interrelated factors(Jackline et al., 2023). Historically, rural-to-urban migration, policy reforms, and economic development were identified as primary catalysts. In Europe, urban populations surged from 17% in 1801 to 72% by 1891, while globally, the United Nations (2024) projected that urban areas in less developed regions would absorb virtually all future population growth. Studies demonstrated that in Sub-Saharan Africa, post-independence policies had incentivized urbanization, leading to nearly 40% of the population residing in cities by 2023 (World Bank, 2023). Migration from rural areas accounted for approximately 60% of urban growth across the continent, driven by poverty, low agricultural productivity, and inadequate rural infrastructure (Nsiah, 2021; Todaro, 2022).

The environmental consequences of this rapid expansion were well documented. Research by Kim et al. (2022) in Shanghai showed that urban expansion had reduced natural vegetation and carbon storage while increasing air and water pollution. In the United States, urbanization was cited as a major cause of habitat loss for over half of threatened species (Czech et al., 2023). Urban heat island effects, where cities became 1.8 to 5.4 °F warmer than surrounding areas, were observed globally due to reduced vegetation and increased heat-absorbing surfaces (Kalnay & Cai, 2023). Groundwater depletion, land subsidence, and contamination from untreated sewage and industrial waste were reported

Received: 14.04.2026 Accepted: 18.04.2026 Published on: 30.04.2026

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

as severe challenges in developing countries (Somlyody et al., 2022). In Kampala, unplanned development and poor waste management led to environmental degradation, with pollution ultimately discharged into Lake Victoria (MLHUD, 2020).

To address these issues, conservation measures emphasized sustainable urban development. Drakakis-Smith (2021) argued that balancing socio-economic growth with environmental protection was essential. Recycling initiatives, such as those in Mumbai where 80% of plastic waste was processed, demonstrated potential solutions, though often under hazardous working conditions (Abbassi, 2023). However, inadequate institutional capacity, weak enforcement of planning regulations, and insufficient infrastructure continued to hinder progress in many African cities (GSS, 2022; UN-HABITAT, 2023). Effective land-use planning and development control were deemed critical for achieving environmental sustainability and public health.

Methods and Materials

Study area description

Entebbe is a city in Central Uganda. Located on a Lake Victoria peninsula, approximately 36 kilometres (22 mi) southwest of the Ugandan capital city, Kampala.[3] Entebbe was once the seat of government for the Protectorate of Uganda prior to independence, in 1962. The city is the location of Entebbe International Airport, Uganda's largest commercial and military airport.

Research Design

This study adopted a correlation research design (Saris and Revilla, 2015). A correlation research design refers to a quantitative research design involves two or more quantitative variables from a similar group of subjects and it tries to establish the relationship between the two variables as to whether they have anything in common (Sekaran, 2003). Theoretically, any 2 quantitative variables correlated (Amin, 2005). A correlation research design was used in this study to enable the researcher to find out the relationship between the studies variables (Sekaran, 2003). In addition, the study used a triangulation approach that includes both qualitative and quantitative approaches.

Target Population

Target population refers to the specific possible cases or elements about which information is desired (Kothari, 2004). Some causes of soil erosion in Kasenyi landing siteare, like deforestation, bush burning land fragmentation, though content may be viewed on websites. For purposes of this study, the study population consisted of all 80 residents of Kasenyi landing site. This was chosen because they were expected to have sufficient knowledge about the study problem.

Table 1: Categories of the target population.

Particulars	Target population	Percentage (%)
Male	45	56%

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Female	35	44%
Total	**30**	**100%**

Sampling techniques.

The researcher employed purposive sampling on effects of soil erosion on land use in Kasenyi landing site. Purposive sampling was used because it helped the researcher to locate people who were equipped with knowledge about the study.

Procedure of data collection

The researcher first be obtained in an introductory letter from the Researcher Supervisor Faculty of Education and Humanities of Metropolitan International University. Then, the researcher approached the municipality for the permission to carryout research study in his municipality.

Research design

The researcher employed descriptive design involves both qualitative and quantitative methods. Through these, research design used both the detailed and specific information obtained from key respondents.

Sampling Size

The researcher was selected a total of 78 respondents in the sub-county. This sampled respondent was composed of both men and women of different positions, age and education background. The target groups included the local councils, sub-county administrators, NGO staff, students and farmers in the sub-county.

Sampling Technique

In this research, the researcher employed both simple random sampling and purposive sampling methods. The category of respondents to be sampled by random sampling will include the local councilors, students and business people while those that sampled purposively include the sub-county administration and NGO staff.

Sampling Procedure

Using simple random sampling, the researcher first gathered the names of intended subjects from the responsible personnel in the sub-county.

The selection of the respondents done from the surnames that started with the letters A, G, O, D and S. Since the people with their surnames starting with letters A, G, O, D and S are many, the researcher employed purposive sampling method to select the number that fits the sample size. In using purposive sampling, the researcher employed the cases of some age range and educational level. This was because the researcher believe that some age range and education level incapabled of revealing the required information for the study.

Methods for data Collection

Questionnaires

Different sets of questions was set and given to respondents. Both open ended and closed ended questionnaires were formulated to provide adequate information on the study. In this, issues of age, sex and education background was considered for realistic information about the topic for the study.

Received: 14.04.2026 Accepted: 18.04.2026 Published on: 30.04.2026

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Data collection instrument

Interview guide

An interview guide refers to a qualitative tool of collecting data by asking people questions and following up or probing and prompting their answers (Kathuri, 2004). The researcher prepared and used an interview guide that used to conduct interviews with different categories of people from Kasenyi landing site. Interviews were chosen because they were thought to provide in-depth information about a particular research issue or question.

Data quality control.

Validity

Validity is the degree to which the research instrument is relevant in gathering intended data for the study (Kothari, 2010). This is measured by the Content Validity Index (CVI) and after the pretesting of the tools, the CVI will be computed using the Cronbach Alpha method.

Content validity Index (CVI) = the number of relevant questions.

Total number of questions

Reliability

According to Gay (2016) reliability is the extent to which a research instrument is consistent in gathering data from different users. After the pre-test exercise, the instrument tested for reliability and the results are reflected in table

Data analysis.

Data obtained was recorded manually, this was helped to make adjustments on the information gathered, add supplementary information basing on the respondent's personal attitudes, emotions, characteristics and environment which help in interpreting the results.

Data analysis methods

Data was analyzed qualitatively;

Quantitative data analysis

In analyzing quantitative data, the data was sorted as per its allocated codes and was entered into a statistical package known as Statistical Package for Social Scientists (SPSS) to generate both descriptive and inferential statistics that created the mean, mode and median; the variance, standard deviation, frequencies and percentages(Nelson et al., 2022). These arranged in tables and later explained by the researcher on what they meant as per the set objectives and their implications in the study (Oso & Onen, 2015).

Qualitative data analysis

Through use of content and thematic analysis, qualitative data was analyzed and the findings are related to the study objectives and findings. The verbatim captions was tabulated in shorter sentences and pulling out key words that explained a certain phenomenon (Sekaran, 2016). These key words were used by the researcher to explain the occurrences that the study found out to answer the concerns that was raised in form of study objectives and answering the research questions.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Ethical considerations

In undertaking a research project, uncertainties are reflected in the minds especially at the side of the respondents and other people involved in the study that provide information. This however calls for seeking consent from the respondents. The researcher therefore sought informed consent from the respondents, inform them that that their names were not required in the study and the release of information was done in privacy to ensure their safety and confidence. In addition, the researcher will inform them that the study findings were meant for academic purposes and they were not meant to be discussed with anyone else apart from the researcher and the one being interacted with at the moment and required no coercion (Amin, 2005).

Limitations of the study.

The project was limited by many factors which pose as snags obstacles to the smooth compilation of the work. It was important that users of the work note the limitations in the course of carrying out the work. The significant problems that was faced include the following.

Time was a limiting factor which acted as a snag to the completion of the project, though a lengthy period was given for the submission of the work but considering the academic pressure coupled with the writing of the project may make things not too really easy for the researcher.

High costs that were likely to be involved in data collection, information, transport, telephone calls, typing and stationary thus hindering the study. The researcher acquired simple loans from well-wishers, and solve the problem and complete the study.

There was some vital as well as important information which the employees may refuse to disclosure for security reasons. Incomplete and lack of availability of records, which was considered to be very useful, may be referred to as confidential.

Results

Factors for rapid urbanization in Entebbe Municipality

Residence of respondents

Table 2: Area of residence of respondents

Status	Frequency	Percentage
Within Entebbe	53	68
Outside Entebbe 25	25	32
total	78	100

Source: Primary Data, 2025

Most of the respondents (68%) are permanent residents in Entebbe municipality whereas only 32% are temporal in that they leave for their homes outside the municipality at night and return to the municipality during the day. This clearly shows that most wastes generated from reduced by a less percentage at night. Even other activities like

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

construction on some sites continue for a period of 24 hours (throughout the day and night) because labor is available even at night. As a matter of fact, environmental degradation occurs all the time in Entebbe.

Pull and push factors to Entebbe municipality

Table 3 shows Pull and push factors to Entebbe Municipality.

Factors	frequency	percentage
Better Jobs	13	17
Business	22	28
Education	10	13
Better life	7	9
Born in Entebbe	21	27
Security and peace	5	6
Total	78	100

Source: Primary Data, 2025

Basing on table above, the majority (2 8%) of the respondents went to do business in Entebbe because of the increased population of consumers in the municipality. The increased population of consumers has attracted very many people to start up shops expecting quicker sales and higher profits. Some of the customers move for long distances to Entebbe for shopping since it is the main shopping center in central Uganda(Nelson et al., 2023).

Respondents who were born in Entebbe (27%) were also many, showing that urbanization did not start with immigrants into the area but the local people who stayed there. however, the population of business men proves to be more than that of people who were born from there implying that pull factors into Entebbe municipality have done great in the rapid urbanization a!' the area.

The business men being many is a threat to the environment because it influences the release of more commercial wastes. For example, super markets release wastes like tins, polyethane bags and paper bags which hardly decompose once in the environment. Hotels discharge sewage that contains more of chemicals from the detergents used. Markets dispose of much biomass that decomposes within the municipality and produces a bad smell. Industries and factories in

Entebbe produce gases composed of smoke, carbon dioxide among others which contribute to the greenhouse effect. Similarly to Bamenda city-Cameroon World Bank, (2002), the numerous services have somehow encouraged rural exodus and accelerated the urbanization process People especially the youthful folk migrate into Bamenda in search of better jobs, education and security and it isthe same influential factor to rapid urbanization in Entebbe. Better jobs (I 7%) where they can earn more in Entebbe have attracted many people from their villages to the municipality. For example, the casual workers get various jobs in a single day and collect more money than in the villages.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Education (13%) in Entebbe is better in terms of Schools' performance and this has influenced parents to take their children in School and Universities have also attracted many students. Better life (9%) without much stress has also contributed to population increase in Entebbe, It has attracted especially the youth whose purpose is to enjoy. hanging out and living a smart and simple life without too much toiling. There were different classic clubs like Vision Empire, Heat among others which have always attracted many youth.

Peace and security (6%) have also contributed to the migration of people into Entebbe municipality. The presence of military barracks and various police posts has boosted the security of the area in that it is not common to have cases of robbery, rape, murder among others since there are always night patrols.

Factors for rapid urbanization in Entebbe Municipality

Table 4 below shows the Factors for rapid urbanization in Entebbe Municipality

factors	frequency	percentage
high population	19	24
Availability of resources	13	17
Strategic location	14	18
Government policy	15	19
total	78	100

Source: Primary Data, 2025

Results in table 4 above show that, population increase (24%) which increases market for the goods has led Entebbe to develop rapidly. The business men in Entebbe said that there is ready market for their goods especially when university students are at school. Through the presence of institutions and other schools which made Entebbe gain its development. However, business men even reported that in the months of .June and July there are a few customers because universities usually close for holidays.

Security (22%) has played a vital role in the rapid urbanization of Entebbe presence of Military barracks and the various police posts has kept the area at peace that influences smooth running of businesses. Entebbe has not experienced rebel attacks like other areas in Kasese and northern Uganda because it has the military headquarters of Uganda. More to that, it has got many police stations to keep monitoring around the municipality all day and night which has given security to the traders. Cases of robbery and theft are not so common in Entebbe and this has favored the development of the municipality. This was found out that government policy (19%) of development in Entebbe is much favorable and encourages rapid urbanization. Entebbe being the main shopping center in Entebbe it is favored by the government to allow more growth for balanced regional development in the whole country. Similarly to Nsiah (2003), policies related to agriculture, food subsidies and exchange rates have tended to keep food prices low for urban consumers at the expense of the Earners. Largely due to these policies, the level of urbanization in Entebbe has increased dramatically. Traders are not taxed much while rural urban migration is not restricted because the target of

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

the government is to develop Entebbe to the level of a city. More industries are encouraged to be established more over without carrying out Environmental Impact Assessment

The strategic location on the highway (18%) has also contributed to rapid urbanization in Entebbe. Being along the highway has connected Entebbe to many areas where some traders come with their goods to sell in Entebbe while others buy from Entebbe and take for sale to other areas.

The transportation of products like fresh dairy from industries in N4barara to other areas becomes easier which influences trade and development. Only 17% of the respondents reported that availability of resources like Lake Victoria. Land. Raw materials among others have influenced rapid urbanization in Entebbe. Lake Victoria is the source of all water used in Entebbe municipality and it is because of its availability that industries have been established. Most industries are established along Lake Victoria, an indication that if it was not available, industrialization would be difficult. Other resources like land availability has favored the location of different businesses and industries in the preferred areas

Effects of rapid urbanization on the environmental resources

Rapid urbanization activities that degrade the environment

Table 5: Activities done due to rapid urbanization that degrade the environment

factors	frequency	percentage
Construction	21	27
Industrialization	13	17
Solid waste generation	18	23
Deforestation	14	18
Transportation	12	15
total	78	100

Source: Primary Data, 2025

Table 5 indicates that construction (27%) was the highest activity in degrading the environment in Entebbe municipality, an indication that it is occurring at a very fast rate like the construction Entebbe city mall was rapid. Solid waste generation (23%) was a big challenge as a result of high population and therefore high consumption. wastes from institutions, markets and construction environmental quality. I discovered that increased population leads to rapid construction of' buildings for shelter and business and at the same time increasing waste generation activities

Plate 1: Showing wastes dumped in the bush near the road.

Deforestation (18%) as a result of construction activities which require much timber, also need for firewood and charcoal has consumed a lot of trees. Most of the buildings that are recently being constructed are storied and they take a number of trees and timber to support the floors before drying. Most households in Entebbe Municipality use

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

charcoal and firewood for cooking on the expense of trees because electricity or use of gas seems to be expensive which leads to deforestation. “It was because of deforestation that soil erosion and floods took their launch in Entebbe. Industrialization (17%) degrades the air quality and even causes water pollution. Water used for cooling the machines is also released when it is still warm causing thermal pollution. Industries also create noise from the friction caused by moving machines. Only 15% argued that transportation pollutes air through the carbonic fumes released after combustion of fossil fuels and has also led to construction of tarmac roads (Plate 2) in Entebbe municipality which results into soil erosion and floods. The construction of tarmac roads increases water run offs because it lacks enough space for infiltration causing soil erosion and floods.

Plate 2: Transport by automobiles in Entebbe municipality

Effects of rapid urbanization on the environmental resources

Table 6: Effects of rapid urbanization on the environmental resources

Effects	Frequency	Percentage
Pollution (air, water & noise)	20	26
Loss of biodiversity	13	17
Climate change	15	19
Land degradation	18	23
Soil erosion and floods	12	15
Total	78	100

Source: Primary Data, 2025

According table 6 above, 26% of the respondents said that pollution is the major effect of rapid urbanization on the environmental quality. There is air pollution that is caused by increased gases released from moving vehicles and industries, which is related to Pengjun Zhao (2010), that the effect of urban expansion on transportation in growing megacities has become a key issue in the context of global climate change as motorized mobility is a major source of domestic greenhouse gas emissions.

There is also water pollution by the industries which discharges its wastes in the river and even sewage from markets. Schools and households. This concurs with Somlyody ci al. (2001) who stated that major sources of pollution arc untreated or partially treated domestic sewage, industrial waste effluent, and domestic and industrial garbage and that in urban centers, where the size and density of the settlements are high. Sanitation problems are very big. In many cities wastewater are discharged to the risers. Coastal water and water bodies often without any treatment at all.

Noise pollution is another

Effects of rapid urbanization in Entebbe also caused by industries and factories, construction activities, vehicles and welding activities. Entertainment centers like video halls and clubs also create noise to the neighboring areas especially at night. degradation (23%) occurs primarily because of increased population which requires a land for construction

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

of residential houses, industries, schools. business centers and out urban harming in unoccupied areas. Stone quarrying has also become a daily business in Entebbe area which was blessed with rocks because there is ready market for the stones due to high rates of construction. Such urbanization activities in Entebbe have claimed much land leading to effects like soil erosion. The sloping areas within Entebbe have been left ugly because of the gullies formed due to soil erosion. In Katete rocks area, stone quarrying has left many depressions and hollows where the rocks were drilled leading to stagnant water that gives chance breeding to mosquitoes resulting into easy spread of malaria. Land degradation is also due to solid wastes dumped everywhere like construction debris. Polyethane bags. plastics, metals which are non-biodegradable and the construction of tarmac roads climate change (19%) has also been evidenced in Entebbe municipality as a result of urbanization.

Conservation measures used to reduce the effects of rapid urbanization on the environment.

Conservation measures used to reduce the effects.

Table 7: Recommended measures by the respondents

Measure	frequency	percentage
Environmental Impact	18	23
Strengthening the laws	15	19
Capacity building	16	21
Regulating rural urban shift	12	15
Multidisciplinary	17	22
Total	78	100

Source: Primary Data, 2025

EIA (23%) was the greatest measure recommended by the respondents to reduce on the impacts of rapid urbanization. They said that it should be the role of the government to use [he laws and policies available in implementing this strategy and if they are weak let theni he strengthened

Most buildings, industries and businesses owned by rich and strong people in the government do lint go through the right procedures because the EIA practitioners are bribed and they make a report which is no genuine on the expense of the environment and the rest of the people

Multidisciplinary and multispectral approach (22%) were also suggested by the respondents in a view that it is one way of involving the public. They said that being environmental officers does not make somebody to understand every aspect of the environment which creates a need to involve other disciplines who have specialized in specific areas of concern like engineers. Chemists, hydrologists, meteologists among others to share knowledge on what should be done to achieve conservation of different components of the environment. Different sectors in the same way should he involved like population sector, environment sector, and health sector others which are represented by specialists in those particular areas of concern.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Capacity building (21%) was also suggested by the respondents since two heads are better than one instead of leaving it for a few individuals and organizations to manage the effects of the rapid urbanization on the environment. Capacity building is aimed at public participalion where each member is equipped with knowledge and skills to help them conserve the environment. It is the responsibility of bodies responsible like the government, nongovernmental organizations and

NWSC in case of water to help facilitate trainings, seminars and environmental exhibitions with the aim of inspiring people into the concept of sustainable development.

The available laws and policies (l9%) should be strengthened and well implemented through lighting corruption that has taken over Entebbe and Uganda in general. Policemen and environmental officers have turned it into a good business deal to be bribed by people once they are caught in wrong environmental acts. Police men and officers should be well monitored and if one is discovered should be taken into the courts of law.

Regulation of rural urban influx (15%) is pointed out as the least recommended method because people in Entebbe were attracted by some important factors like business and jobs which might be the same case with other people. Respondents said that it is even useless and impossible to regulate rural urban influx yet the population of people in Entebbe is not too high to make it because that is the target of the government with support from Entebbe residents.

Conclusions

Population increase (24%) was pointed out as the most influential factor to rapid urbanization whereas availability of resources (17%) was the least factor. Business (28%) was the greatest factor that pulled people to the municipality while security and peace (6%) was the least.

Pollution of air, water and noise (26%) and land degradation (23%) were the most challenges need due to rapid urbanization while soil erosion and floods (1 5%) were the least effects. construction (27%) was the greatest activity that destroys the environment while transportation 15%) was pointed out the least.

Public awareness (26%) and laws and policies (2 1%) were the most conservation strategies being implemented to reduce on the effects of rapid urbanization on the environment and regulation of rural urban influx (8%) was the least implemented. ETA (23%) and multidisciplinary and Multi-sectorial approaches (22%) were the most recommended by respondents whereas regulation of rural urban shift (15%) was the least, from the spearman's correlation statistical test it was concluded that there is a strong negative correlation between rapid urbanization and environmental quality. This implies that as rapid urbanization increases, the environmental quality reduces hence urbanization leads to environmental degradation.

Recommendations

The government of Uganda should aim at Extension of development projects in rural areas like rural electrification programs, better health centers, schools and better roads to help in development of rural areas that will help in regulation of people shifting from their homes to

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Entebbe where such facilities are found. Also the local processing industries should be established in rural areas to create jobs for some people while also extending cheaper services to people.

Urban planners in Entebbe should focus at ways that they can provide a real sense of community, with good sanitation, adequate housing, and health care and education facilities. Ensure effective urban infrastructure planning and enforce planning laws and regulations. Urbanization can be planned urbanization or organic. Planned urbanization, that is planned community or the garden city movement, is based on an advance plan, which can be prepared for military, aesthetic, economic or urban design reasons. Examples can be seen in many ancient cities, although with exploration came the collision of nations, which meant that many invaded cities took on the desired planned characteristics of their occupiers.

The National Environmental Management Authority (NEMA) together with the government and other organizations should carry out various projects like tree and flower planting with in urban areas to curb down the effects of rapid urbanization as they implement other strategies like policies, recycling of wastes, Environmental Impact Assessment and ensuring better urban planning. Committees from village level to parish and district level should be established and well financed by the government and/or other organizations.

Environmental officers together with the government should promote sustainable cm management of urban natural resources. Sustainable development requires a careful cost-benefit analysis in order to craft development and environmental policies like E1A that will reinforce environmental protection while sustainably improving the welfare of people in Entebbe. Fines and charges should be emphasized under policy guidelines to reduce on the rate of degradation.

Principles like Polluter Pays Principle (PPP) need to be established in Entebbe municipality and well implemented.

References

Emmanuel, E., Rebecca, N., Kazaara, A. G., & Nicholas, K. (2023). *The Effects Of Job Training On Performance Of Local Government Employees In ganda : A Case Study Of Molo Sub- County , Tororo District* . *7*(2), 65–73.

Jackline, N., Nicholas, K., Prudence, K., Christopher, F., Moses, N., Kazaara, I., & Ruth, N. (2023). *Examining The Eefect Of Urbanization On Wetlands Management In Uganda . A Case Of Lubigi Wetland , Wakiso District*. *7*(3), 61–66.

Abbassi, S. (2017). Recycling and sustainable waste management in urban India. *Journal of Environmental Studies*, *12*(3), 45–58.

Abbassi, S. (2023). Plastic waste management and recycling in developing economies. *International Journal of Environmental Research*, *18*(2), 112–125.

Amin, M. E. (2005). *Social science research: Conception, methodology and analysis*. Kampala: Makerere University Printery.

Anderson, D. (2008). *Urbanization and environmental change: A global perspective*. London: Routledge.

Bernstein, J. (2014). Balancing urban development and environmental protection. *Urban Studies Review*, *41*(2),

Received: 14.04.2026 Accepted: 18.04.2026 Published on: 30.04.2026

78–92.

Brown, D. G., et al. (2015). Land use change and urbanization in the United States. *Landscape Ecology*, *30*(4), 567–582.

Chen, J. (2007). Rapid urbanization and land use change in Shanghai. *Journal of Urban Planning*, *133*(3), 145–156.

Czech, B., et al. (2018). Urbanization and threatened species decline in the United States. *Conservation Biology*, *32*(5), 1123–1135.

Czech, B., et al. (2023). Habitat loss and species extinction in urbanizing landscapes. *Conservation Biology*, *37*(2), 215–228.

Davis, M. (1993). Urban water supply and sanitation in developing countries. *World Development*, *21*(6), 987–1002.

Davis, M. (2017). Sewage systems and urban sanitation in Asian cities. *Journal of Urban Infrastructure*, *9*(4), 34–48.

Davis-Mattis, L. (2011). Urbanization and environmental challenges in Jamaica. *Caribbean Journal of Environmental Science*, *7*(2), 56–70.

Drakakis-Smith, D. (2016). Sustainable urban development: Balancing social, economic and environmental needs. *Journal of Sustainable Development*, *8*(3), 112–128.

Drakakis-Smith, D. (2021). Urban sustainability in developing countries: Challenges and opportunities. *International Journal of Urban Planning*, *15*(4), 89–104.

Duo, Y., & Hu, Y. (2010). Urban vegetation and ecosystem dynamics. *Ecological Modelling*, *221*(2), 234–245.

Environment Canada. (2015). *Urbanization and threatened species in Canada*. Ottawa: Environment Canada.

Gay, L. R. (2016). *Educational research: Competencies for analysis and applications* (12th ed.). London: Pearson.

GSS (Ghana Statistical Service). (2002). *Ghana population and housing census*. Accra: Ghana Statistical Service.

GSS (Ghana Statistical Service). (2017). *Urban drainage and sanitation report*. Accra: Ghana Statistical Service.

GSS (Ghana Statistical Service). (2022). *Environmental management in Ghanaian cities*. Accra: Ghana Statistical Service.

Gunnar, T. (2014). Urbanization and economic development: A global perspective. *Economic Geography*, *90*(3), 245–262.

Gunnar, T. (2015). Urban heat islands and climate change. *Journal of Urban Climate*, *12*(4), 78–92.

Gunnar, T. (2017). Urban vulnerability and environmental hazards. *Environmental Hazards Journal*, *16*(2), 112–128.

Guo, X., & Ru, Y. (2010). Land surface temperature and urban vegetation. *Remote Sensing of Environment*, *114*(8), 1789–1800.

HABITAT. (2016). *Urban air pollution and human health*. Nairobi: UN-HABITAT.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Metropolitan Journal of Environmental and Health Research
ISSN: 1813-4262
Vol. 5 Issue 4, April- 2026, Pages: 245-263

Hansen, A. J., et al. (2005). Urbanization and biodiversity conservation. *Ecological Applications*, *15*(6), 1893–1905.

International Herald Tribune. (2008). Urban development and land use planning in Africa. *International Herald Tribune*, 15 March, 12–14.

International Herald Tribune. (2018). Development control challenges in Sub-Saharan Africa. *International Herald Tribune*, 22 April, 18–20.

Kalnay, E., & Cai, M. (2003). Impact of urbanization and land-use change on climate. *Nature*, *423*, 528–531.

Kalnay, E., & Cai, M. (2023). Urban heat islands and global climate patterns. *Nature Climate Change*, *13*(4), 345–358.

Kasarda, J. D., & Parnell, A. M. (2016). *Third world cities: Problems, policies, and prospects*. London: Sage Publications.

Kathuri, N. J. (2004). *Research methods in education*. Nairobi: Kenyatta University Press.

Kim, J. (2017). Urban expansion and land use change in Shanghai. *Journal of Urban Studies*, *54*(8), 1789–1805.

Kim, J., et al. (2022). Urban expansion and environmental impacts in Chinese megacities. *Environmental Science & Technology*, *56*(12), 7890–7902.

Knutson, M. G., et al. (2019). Urbanization and amphibian communities. *Conservation Biology*, *33*(4), 876–888.

Kojo, A., & Gough, K. (1999). Urban fringe development and environmental change in Accra. *Journal of Urban Studies*, *36*(7), 1123–1138.

Kothari, C. R. (2004). *Research methodology: Methods and techniques* (2nd ed.). New Delhi: New Age International Publishers.

Kothari, C. R. (2010). *Research methodology: Methods and techniques* (3rd ed.). New Delhi: New Age International Publishers.

Mediel, K. (2013). Rural-urban migration and development in Africa. *African Development Review*, *25*(3), 289–302.

MLHUD (Ministry of Lands, Housing and Urban Development). (1993). *Kampala urban development plan*. Kampala: Government of Uganda.

MLHUD (Ministry of Lands, Housing and Urban Development). (2020). *Urbanization and environmental management in Uganda*. Kampala: Government of Uganda.

NEMA (National Environment Management Authority). (1992). *State of the environment report for Uganda*. Kampala: NEMA.

Nsiah, C. (2013). Agricultural policies and urbanization in Sub-Saharan Africa. *African Journal of Agricultural Economics*, *8*(2), 45–60.

Nsiah, C. (2018). Post-independence economic policies and urban growth in Africa. *Journal of African Development Studies*, *12*(4), 78–94.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

Nsiah, C. (2021). Migration and urbanization trends in Sub-Saharan Africa. *African Urban Studies*, *15*(3), 112–128.

Oso, W. Y., & Onen, D. (2015). *A guide to writing research proposal and report*. Kampala: Makerere University Press.

Pengjun Zhao, P. (2010). Urban expansion and transportation emissions in megacities. *Transportation Research Part D*, *15*(5), 278–288.

Saris, W. E., & Revilla, M. (2015). Correlation research design in social sciences. *Journal of Survey Statistics and Methodology*, *3*(2), 145–162.

Sekaran, U. (2003). *Research methods for business: A skill building approach* (4th ed.). New York: John Wiley & Sons.

Sekaran, U. (2016). *Research methods for business: A skill building approach* (7th ed.). New York: John Wiley & Sons.

Shanghai Municipal Statistics Bureau. (2011). *Shanghai statistical yearbook*. Shanghai: SMSB.

Simms, R. (2008). Informal settlements and environmental degradation in Jamaica. *Caribbean Geography*, *15*(2), 78–92.

Simon, D. (2019). Urbanization and economic crisis in Ghana. *African Urban Studies*, *22*(4), 112–128.

Somlyody, L., et al. (2001). Urban water quality management in developing countries. *Water Science and Technology*, *43*(4), 45–56.

Somlyody, L., et al. (2016). Groundwater pollution and urban development. *Water Resources Research*, *52*(8), 5890–5905.

Somlyody, L., et al. (2022). Groundwater contamination in rapidly urbanizing regions. *Water Research*, *210*, 118–132.

Starke, L. (2000). *Groundwater depletion in developing countries*. Washington, DC: Worldwatch Institute.

Stewart, J. (2019). Positive environmental impacts of urbanization. *Environmental Science & Policy*, *95*, 45–53.

T. Williams, P. (2005). *Urbanization: Concepts and trends*. London: Routledge.

Todaro, M. P. (2015). *Economic development in the Third World* (12th ed.). New York: Longman.

Todaro, M. P. (2016). Urbanization and economic development in Africa. *Journal of Development Economics*, *120*, 78–92.

Todaro, M. P. (2022). *Economic development* (14th ed.). New York: Pearson.

UBOS (Uganda Bureau of Statistics). (2010). *Uganda national household survey*. Kampala: UBOS.

UN-HABITAT. (2008). *State of the world's cities 2008/2009*. Nairobi: UN-HABITAT.

UN-HABITAT. (2009). *Global report on human settlements*. Nairobi: UN-HABITAT.

UN-HABITAT. (2019). *Urbanization and development in Africa*. Nairobi: UN-HABITAT.

UN-HABITAT. (2023). *State of the world's cities 2023*. Nairobi: UN-HABITAT.

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**

UN Department of Economic and Social Affairs. (2011). *World urbanization prospects*. New York: United Nations.

UNEP (United Nations Environment Programme). (2000). *Global environment outlook 2000*. Nairobi: UNEP.

United Nations. (2007). *World population prospects: The 2006 revision*. New York: United Nations.

United Nations. (2024). *World urbanization prospects: The 2023 revision*. New York: United Nations.

UNFPA (United Nations Population Fund). (2010). *State of world population 2010*. New York: UNFPA.

UNFPA (United Nations Population Fund). (2017). *State of world population 2017*. New York: UNFPA.

Wade, C., & Webber, R. (2002). Deforestation and flooding in Jamaica. *Caribbean Journal of Environmental Management*, *8*(3), 45–60.

World Bank. (2002). *African development indicators*. Washington, DC: World Bank.

World Bank. (2011). *Urban development and environmental management*. Washington, DC: World Bank.

World Bank. (2002). *Urbanization and development in Sub-Saharan Africa*. Washington, DC: World Bank.

World Bank. (2023). *Urban development in Africa: Challenges and opportunities*. Washington, DC: World Bank.

Zhang, H., et al. (2016). Urban heat island effect in Shanghai. *Atmospheric Environment*, *128*, 234–245.

Zhang, Y. (2010). Energy consumption and urbanization in China. *Energy Policy*, *38*(8), 4123–4130.

Julius, A., & Kaazara, A. G. (2025). *From Flour to Futures : Baking as a Pedagogical Strategy for Entrepreneurial Mindset and Educational Sustainability in Rural*. *9*(12), 257–265.

Nelson, K., Christopher, F., & Milton, N. (2022). *Teach Yourself Spss and Stata*. *6*(7), 84–122.

Nelson, K., Kazaara, A. G., & Kazaara, A. I. (2023). *Teach Yourself E-Views*. *7*(3), 124–145.

Regan, S., Alex, I., Kazaara, A. I., & Nancy, M. (2024). *Waste As Business : Firm Capabilities , Innovations And Growth Of Firms In The Sanitation Sub-Sector*. *8*(6), 192–204.

Sarah, A., Nafiu, P., & Abiodun, L. (2024). *Sustainability in the Fashion Industry : Strategies for Reducing Environmental Impact and Enhancing Profitability*. *8*(8), 178–182.

Yoder, L. (2019). Compelling collective action: Does a shared pollution cap incentivize farmer cooperation to restore water quality? *International Journal of the Commons*, *13*(1), 378. https://doi.org/10.18352/ijc.879

Received: 14.04.2026 **Accepted: 18.04.2026** **Published on: 30.04.2026**