

Loughborough University Institutional Repository

Urban environmental problems

This item was submitted to Loughborough University's Institutional Repository by the/an author.

Citation: OBUDHO, R.A., OBUDHO, R.A. and MAIRURA, O.K., 1991. Urban environmental problems. IN: Pickford, J. et al. (eds). Infrastructure, environment, water and people: Proceedings of the 17th WEDC International Conference, Nairobi, Kenya, 19-23 August 1991, pp.41-44.

Additional Information:

- This is a conference paper.

Metadata Record: <https://dspace.lboro.ac.uk/2134/30387>

Version: Published

Publisher: © WEDC, Loughborough University

Rights: This work is made available according to the conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. Full details of this licence are available at: <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Please cite the published version.



17th WEDC Conference
Infrastructure, environment,
water and people
Nairobi, Kenya 1991

Urban environmental problems

Dr Robert A. Obudho, Mrs Rose A. Obudho
and Otiso Kefa Mairura

Abstract

Urbanization in Kenya is proceeding at a very rapid rate and in the last two decades, the urban population has been growing within the range of 6 to 8 per cent per annum. (1) This present growth and trend of urban centres has resulted in an immeasurable number of urban environmental problems such as slum and squatter settlements, lack of building maintenance, lack of drainage, water supply and sanitation, noise pollution, air pollution and lack of solid waste disposal.

The situation in Nairobi, Mombasa and other urban centres has been taken to show how various aspects of the environmental degradation process has affected Nairobi and other urban centres as a means of understanding the current and future urban environmental problems in Kenya. The paper concludes by suggesting strategies which can help in developing a sustainable urban environment in Kenya.

INTRODUCTION

Among the LDCs, Kenya's population is known to be increasing rapidly more so in the urban areas. In the last two decades the urban population in Kenya has been growing within the range of 6-8% per annum (table 1).

Table 1: Kenya: Rural and Urban Population
(in '000's)

Year	Rural	Urban	Total	Annual Rate Growth Rural	of Urban	Total
1948	5,120	286	5,406	-	-	-
1948-62	-	-	-	3.2	6.6	3.4
1962	7,910	671	8,636	-	-	-
1962-69	-	-	-	3.2	6.4	3.3
1969	9,861	1,082	10,943	-	-	-
1969-79	-	-	-	2.8	7.9	3.4
1979	13,018	2,309	15,237	-	-	-

Source: Obudho R.A. Shelter and Services for the poor in Nairobi, Kenya. Paper presented at the Expert Group Meeting on Shelter and Services for the poor in Metropolitan areas, Nagoya, Japan, 1987

Much of Kenya's urban population growth has occurred mainly in those urban centres with 20,000-99,999 inhabitants wherein the growth rate has been around 13.9%. However, urban centres with 2,000 to 4,999 dwellers have also grown rapidly underscoring the importance of secondary urban centres in Kenya's spatial structure. (2) This growth of secondary urban centres especially in the last decade has been due to the Government of Kenya's (GOK's) spatial development policy. This population growth coupled with the uncontrolled physical expansion of urban centres has also had serious implications for the urban environment and economy as a whole.

URBAN ENVIRONMENTAL PROBLEMS

Urban environmental problems in Kenya were first felt in the largest urban centres like Nairobi and Mombasa and for Nairobi problems set in almost as soon as it was founded as a Bazaar.(3) The major urban environmental problems in Kenya include the following:

Air Pollution: The causes of air pollution are cars and other, vehicular forms of transport, industries, charcoal burning, garbage and rubber burning and the burning of petroleum plastic products. In Kenya leaded gasoline is used for all vehicles. The lead content in the gasoline currently stands at 0.4 grammes per litre of gasoline. This is a high figure especially when understood vis-a-vis the total ban or reduction to the absolute minimum especially in the More Developed Countries (MDCs).

Suspended particulate matter also leads to air pollution. In 1982, for example, the measurement of concentration of suspended particulate matter revealed higher concentrations in Nairobi's Industrial Areas (252 microgrammes per cubic metre) than other areas such as Buru Buru Estate with 80 microgrammes per cubic metre, Woodley and Jamhuri Estate 83 microgrammes per cubic metre.

Air pollution control and prevention is difficult because of the inter-relation of residential areas with industrial concerns. Lack of air quality standards not only at national but local levels makes it impossible to fix the thresholds and variations in the safety margins even for those industrial

concerns that may be willing to set their own standards. It is necessary to establish a level of protection which is both desirable and attainable and which includes appropriate safety margins and takes account of Kenya's meteorological conditions.

Water Pollution: In Kenya this is mainly caused by sewage discharge into rivers, storm water, and industry. In many urban centres (such as Nairobi, Mombasa, Kisumu and Kisii) sewage is usually disposed by being discharged into a receiving body of water. As early as 1919, the Nairobi river was found to be infected with typhoid and its water was considered unfit for human consumption. This arose due to the channeling of much of the then city's raw sewage into the Nairobi river. Interestingly this river has never ceased being an open sewer for the city ever since. Elsewhere, Mombasa and Kisumu discharge their sewage into the Indian Ocean and Lake Victoria, respectively. Kisii town is in no better situation as its sewage is discharged into the Daraja Mbili river. It is noteworthy that this river supplies drinking water to part of the urban centres' population and many more people downstream.

Control of water pollution in Kenya is hampered by lack of skilled manpower, scarcity of financial resources, and the general feeling that water pollution in Kenya's urban areas has not reached critical levels. This, however, is unrealistic as for instance the Nairobi river has been polluted to a point of being black in appearance.

Noise Pollution: The major causes of noise pollution in Kenya's urban areas include supersonic aircraft, powerful cars, buses, trucks, motorcycles, construction and other powered equipment such as blaring stereo music systems. Most of these noise pollutants are from outdoor sources.

In Kenya there are no limits to noise pollution. The only attempt at limiting it has been verbal warnings for drivers not to hoot loudly in the CBD, and also that they should not play loud music in their vehicles. The issue here, however, is how loud is a loud noise and at what dB level does it become or cease to be loud? At best such directives are vague and serve no purpose. There are no regulations in Kenya that regulate noise pollution. Noise has the capacity to cause stress and disorient people especially at very high decibels at constant basis. We, therefore, see that the urban environment is a complex of interacting elements which have to be addressed at specific and general levels to ensure a sustainable growth of the urban environment type (table 2).

Table 2: Sound intensity level (dB) for selected sources:

120	Propeller aircraft (at 50m)	injurious range
110	Rock drill	
100	Metal-working shop	danger range
80-90	Heavy lorry	
80	Busy street	
60-70	Private car	safe range
40	Soft music	

Adopted D.M. Elsom, (reference 7).

It can be inferred from the table 2 that most of the aforementioned causes of noise pollution in Kenya are in the danger range. Although data on the effects of noise pollution in Kenya is not available, there is every reason to believe that they have been quite substantial. This, therefore, calls for more action in this area. The biggest bottleneck though is the lack of information on the effects of noise pollution in Kenya. This information needs to be collected before further action can be taken.

Solid Waste disposal: This is one of the most intractable problems of urban centres in Kenya. Deficiencies in the management of solid wastes are very pronounced in many urban centres in Kenya, with many areas within these urban centres receiving little or no attention. Urban solid-waste management services have consistently failed to keep pace with demand, and the insidious social and health effects of this neglect is greatest among the poor sectors of urban populations.

In Kenya there is an irregular solid-waste collection system which leads to waste being dumped in open spaces, on access roads and along and in water courses. Dumps are invaded by scavengers (people, animals and birds) which scatter the wastes, and so serve as breeding grounds for disease vectors, primarily flies and rats.

In answering charges of inefficiency, many local governments in Kenya cite financial constraints. Whereas this is true to some degree, one, however, wonders how efficiently the available resources have been used, before we clamour for more. The recent introduction of service charges in Kenya has given a ray of hope that services including solid-waste disposal will improve. The way things are at present, however, gives one jitters as there are indications that things are worsening despite the (now) available resources. The whole system of solid-waste management thus needs to be overhauled.

Odour Pollution: Odours are either pleasant or unpleasant. As a whole, however, odours are considered unhealthy annoyances to be removed from the environment. Odour sources include industries, pig and poultry farming, and sewage and refuse disposal. Though detectable over long distances in some circumstances, odour pollution is essentially a local problem.

In Nairobi odour pollution is mainly confined to the industrial areas where strong odours have been experienced especially in the evening. Of all industries, tanneries are among the leading odour polluters. The Zimmermann tannery near Kamiti, Nairobi is one such culprit.

Odour strength is measured using a scentometer which is graduated in D/T (dilutions to threshold). Odours above 31 D/T on the scentometer are regarded as being serious.

Odour annoyance in Kenya's urban centres is generally verbally expressed and there exists little or no data on odour pollution in Kenya. Data on odour pollution should be collected to facilitate odour annoyance management. The absence of such data has hindered efforts of managing this problem, as national standards have not been set. There is need for more research in this area.

Building Maintenance: This has been a chronic problem in Kenya for a long time. Many local governments are unable to maintain buildings mainly because more pressing problems (e.g. building new houses) are always cropping up. This has tended to lead to rapid deterioration of the housing infrastructure in Kenya's urban areas (4). Furthermore the occupancy rate in low income housing is normally very high due to the rapid population growth rate and lack of adequate housing for the poor.

Building maintenance has been declining over the years. Newly constructed housing quickly deteriorate to appear ancient. Some recently constructed housing estates like Umoja I, today qualify to be classified as slums! Steps should be taken to curb this trend, or else new housing estates will continue to be environmentally unfit for human habitation.

Human Settlements: Despite the various building by-laws and acts in Kenya's urban centres, there are many unregulated slum and squatter settlements in these urban centres. These settlements are a response to the lack of low-income housing and unbalanced economic development patterns. Basic services in these areas are inadequate

thus making them unfit for human habitation.

These areas need to be improved and made habitable although this is not easy. The basic servicing which has been done at Mathare, Nairobi is encouraging.

COPING WITH URBAN ENVIRONMENTAL PROBLEMS

Many methods have been used to curb urban environmental problems in Kenya. These methods include sanitary landfill, incineration, waste recycling and ocean dumping of waste. Most of these methods, however, lead to environmental problems of their own. The price tag associated with them is also prohibitive for a developing economy.

In the more serious areas such as water, air, noise and odour pollution, control programmes have mainly been hampered by the lack of an environmental policy in Kenya. There, however, exist a number of disjointed and sectoral policies regarding the environment. These policies are hardly enforced because of the lack of environmental legislation in the country's constitution.

The limited environmental conservation efforts that have been expended in the country, have done so without any clear guidance and this has tended to erode their effectiveness.

The single most important step that needs to be urgently taken in managing Kenya's environment as a whole, is the enactment of environmental legislation and the preparation of a national environment policy, wherein the urban environment will be a sub-set. Without such legislation and policy it is difficult to gauge and thus control Kenya's urban environmental problems.

CONCLUSION

The above general account has highlighted some of the urban environmental issues and problem which Kenya faces. These problems are constantly on the increase as the urban areas grow in size and in its population. To curb these problems the GOK need to initiate and enforce better urban planning measures that will discourage the situation described above. There is need to establish a detailed maintenance policy within the urban administration for the maintenance and management of the environment for the urban residents.

The objective of such a policy would be directed primarily at the improvement national urban strategies, especially

decentralisation strategies strengthening local urban government; increase self-reliance and citizen participation in urban management, improvement of housing and services for the urban poor, especially for women and children; tapping of inland resources; increase co-operation among LDC's urban centres, on the management, increase international support and the use of hinterland courses - the greenland and satellite strategies. All these strategies will increase a sound urban environment which is free from health hazards through the provision of clean drinking water, frequent refuse collection, and improved sewerage maintenance. In the construction of major capital developments, the GOK would be expected to follow more appropriate engineering standards for the construction of infrastructure such as roads, water supplies and sewerage systems, among others. Such revised standards would reflect the relative scarcity of capital and the trade-off between lower capital costs initially and higher maintenance costs later. Also, in order to stretch the available funds to the maximum, resources would have to be concentrated on those projects which offer lower construction and maintenance costs per beneficiary. The relevant ministries within the GOK should make an effort to compile a comprehensive inventory of their built stock, their infrastructural facilities with complete details of the maintenance conditions of each building and facility.

In line with the GOK policy on financing urban infrastructure, the urban centres should be encouraged to charge market prices for services and facilities it provides. Such services as the sale of rental housing and housing plots at current market values within its jurisdiction will create a stronger financial base for the urban centres to raise funds for its maintenance operations.

The recent introduction of The Local Authorities Service Charge Act with its subsequent Local Authorities Service Charge Regulations, 1988, form a good base for the urban centres to raise revenue for most of the services it provides to local residents. Money collected it is hoped will be utilized to improve the level of maintenance and cleanliness within the urban areas. With the introduction of these charges, the public will expect a higher standard of maintenance within the urban areas. As urban authorities strive to promote and develop urban infrastructure, they make these areas more and more attractive to the rural folk. The result is an increasing population pressure and thus compounding the environmental problems highlighted.

First and foremost it is important to encourage public participation in environmental management. Public health awareness is crucial if the environment is to be made good for human habitation. Recycling of solid waste has to be brought to the level where it contributes significantly to solving the problem of waste disposal. To curtail air pollution taxation and other penalties should be used to control the omission of various fumes especially by industries and cars. A very promising effort to improve air quality is the tree and flower planting that has been carried on lately by the local authorities, in its endeavour to make them beautiful. This exercise, if properly co-ordinated, can yield good results, not only in supporting the improvement of air quality but also in supporting measures in controlling noise pollution and other environmental inconveniences. But it seems that the aim of the urban areas is not improvement of air quality, this is only incidental to the making of the urban centre beautiful. The trees and flowers are planted only in the CBD and major highways. There are not such trees and flowers in the Industrial Area where greater pollution is generated.

Separation of storm water and sewer has been found to be very expensive in MDCs and these costs are very prohibitive in LDC's. Storage facilities for storm water is a cheaper option and such water can be released slowly into the sewer drainage systems in dry seasons. This will reduce the incidents of river pollution due to sewer overflow and the health implications to the population down stream.

The year 2000 AD will usher in more people into the urban areas with scarce resources but the natural environment will become more barren save for the proliferation of man and too many workers. Effort must be made in the present to prevent the breakdown of urban environments in the future.

REFERENCES

1. OBUDHO, R.A. Urbanization in Kenya: A Bottom-up Approach to Development Planning. Washington, D.C. University Press of America, 1983.
2. OBUDHO, R.A. and G.O. ADUWO "Small Urban Centres And Spatial Planning in Kenya", in Jonathan Baker (eds) Small towns in Africa: Uppsala: Scandinavian Institute of African Studies, 1990.
3. OTISO, K.M. Urban Environmental Problems: An Overview. Paper presented to Staff and Graduate Students, Department of Geography, University of Nairobi, 1991
4. OBUDHO, R.A. and G.O. ADUWO "Slum and Squatter Settlements in Urban Centres of Kenya: Towards A Planning Strategy" Netherland Journal of Housing and Environmental Research 4:1 (1989, 17-28).