Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 5(3):351-363
© Scholarlink Research Institute Journals, 2014 (ISSN: 2141-7024)
jetems.scholarlinkresearch.org

Urban Environmental Planning and Development Control of Medium Sized Towns in Kenya. A Case of Eldoret Municipality

Job K. Ngetich, Grephas P. Opata and Leonard S. Mulongo

School of Environmental Studies, University of Eldoret,
P.O BOX 1125-30100, Eldoret, Kenya.

Corresponding Author: Job K. Ngetich

Abstract

Kenya is urbanizing and is projected to be a predominantly urban country by 2033. Currently, about 30 percent of the population lives in urban areas. The share of the urban population is set to rise 37 percent by 2020, and in 2033, Kenya will reach an important milestone, when most of its population will live in urban areas. Eldoret is one of the Kenya's Medium sized towns in Kenya, which is experiencing rapid rate of urban growth. It has a population of 289,380 people and by 2030 it will be home to 584,782 people. This rapid urbanization will therefore need to be guided by effective urban development control instruments and practices important for sustainable urban livelihoods. The paper identifies and documents Urban development control instruments and practices, and determines their impacts on the urban environment. Urban development control in Eldoret is informed by both statutory and non-statutory instruments with Urban Areas and Cities Act 2011 being the principal instrument. The spatial pattern of Eldoret Municipality is closely knit with the type of plans which have been implemented over the years including, Physical development plans, Part development plans, Structure plans, Advisory plans, zoning plans and Subdivision plans. It is estimated that on average between 706 and 1000 building structures are generated per year such that by 2030, over 20,000 buildings will be expected to be built leading to land coverage of about 4km^2 and its attendant environmental problems. The paper gives a framework for addressing environmental problems associated with urban development control in Eldoret Municipality.

Keywords: urban development, environmental planning, development control, physical development plans

INTRODUCTION

Kenya is urbanizing and is projected to be a predominantly urban country by 2033**.** Twenty years ago Kenya's urbanization level was only 18%. Since then, Kenya's urban population has been rising rapidly with an urbanization rate of 4%. Currently, about 30 percent of the population lives in urban areas. The share of the urban population is set to rise to 37 percent by 2020, and in 2033 Kenya will reach an important milestone, when most of its population will live in urban areas. Every year more than 250,000 Kenyans are moving to cities and formerly rural areas are becoming increasingly urban (World Bank, 2014). Figure 1.1 shows urbanization trends from the global and regional contexts.

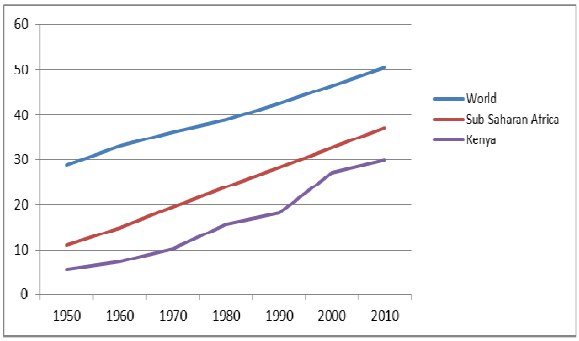


Figure 1.1: Urbanisation Trends
Source; World Bank, 2014

Eldoret town is one of the towns in Kenya which is experiencing rapid growth. Eldoret town is currently inhabited by over 300,000 people. It is projected that the town will be home to 584,782 people in 2030. This rapid urbanization will therefore need to be guided by effective urban development control instruments and practices**.**

STATEMENT OF THE PROBLEM

Urbanization process is unstoppable, irreversible, and is taking place largely in developing world. In 2003 the global urban population was estimated to be at 3 billion, while half of the world population or 3.3 billion people lived in urban areas in 2008. This number is expected to rise to 5 billion by 2030, and 80% of these urban dwellers will live in towns and cities of the developing world (Leautier, 2006; ISOCARP, 2010). Africa, though currently lagging behind other regions, in terms of numbers will be home to a staggering 1.2 billion urban dwellers by 2050.The situation in Kenya is a reflection of the global trend. It is estimated that more than 34% of Kenya's population lives in urban areas and by 2030 this number is projected to reach 63%.It is estimated that 71% of the urban population live in slums.In the case of Eldoret town, its population has been increasing rapidly from 8,193 in 1948, to 197, 144, in 1999, and 289,380 in 2009. It is projected that at the

growth rate of 3.35% that by the year 2030, Eldoret town will be home to over 584,782 people, and hence the need for effective instruments of urban development control.

Urbanization in Kenya is occurring in a disorderly fashion as there is no planned framework defining the desirable national urban structure and form to be promoted. Urban areas are therefore sprouting haphazardly on the national landscape. At the local level, urban areas are expanding spontaneously without regulation and guidance. What is happening in the country's urban sector can be summarized as chaotic or rogue urbanization; the kind of urbanization that can only accentuate under-development, rather than promote development (AAK, 2011).

Urban form directly impacts the habitat, ecosystems and water quality, leading to loss of many endangered species of both flora and fauna. Urban form also gives rise to the emission of greenhouse gases that are driving adverse climate change, affecting water quality and impacting negatively on human health. In Kenya, environmental problems continue to be experienced despite the existence of a plethora of laws and regulations as evidenced by massive developments being constructed on environmentally sensitive and fragile areas such as wetlands, riparian reserves and hill tops. Blockage of natural water drains on the urban areas by authorized developments and paved surfaces have been known to facilitate flooding and increase surface runoff. This underscores the need to develop practices that reduce negative environmental impacts in the urban areas (Muigai, 1995; AAK, 2011).

OBJECTIVES OF THE STUDY

The study was intended to establish the effectiveness of urban development control instruments and practices as they are implemented in Eldoret Municipality and their environmental implications. The specific objectives include:-

a) To identify and, document the existing urban development control instruments and practices in Eldoret Municipality

b) To establish the spatial development trends of urban development and their implications on the urban environment

c) To formulate a framework for addressing environmental problems of Urban development control

THE STUDY AREA

The study area is Eldoret Municipality in Kenya which is located at a distance of 300 Km to the North Western part of Kenya, from Nairobi. Figure 1.2 shows the location of Eldoret town in Kenya.

Figure 1.2: Location of Eldoret Town in the Map of Kenya
Source: Republic of Kenya, 2007

RESEARCH METHODOLOGY

The data was collected through document analysis and field survey of selected four urban neighbourhoods zones of Elgon View (Low Density Residential), Kimumu (Medium Density Residential), Langas (High Density Residential) and Maili Nne (Peri-urban).Interview schedules were used to garner data from urban development control institutions of; Physical Planning, Public Health and Lands Departments, Kenya Airport Authority and the Kenya Urban Roads Authority. The statistics on the number of development applications such as building plans and spatial plans were obtained through document analysis.

RESULTS AND DISCUSSION

Legislative Framework of Urban Environmental Planning and Development Control

Kenya like many other countries has for a long time used the European- British planning system which consists of the vestiges of legislation of 1947, 1953 and 1959,where the local planning authority must grant permission before any development is carried out. Following the promulgation of the new constitution of Kenya in 2010,the European oriented system of planning which was characterized by existence of institutions such as the ones for the Mayors, Chairmen and Town/County clerks of the Municipalities and Counties, has been replaced with Americo-centric system of planning and Administration. Kenya operates under a devolved framework with 47 semi-autonomous Counties under the leadership of the Governors and Senators. The administrative structure is still in nascent stage. The Town/or Municipal Board and City Management Boards are to run the cities with the Town Manager as the Chief Executive. Table 1.1 provides a summary of instruments and tools used for Urban development control system in Kenya.

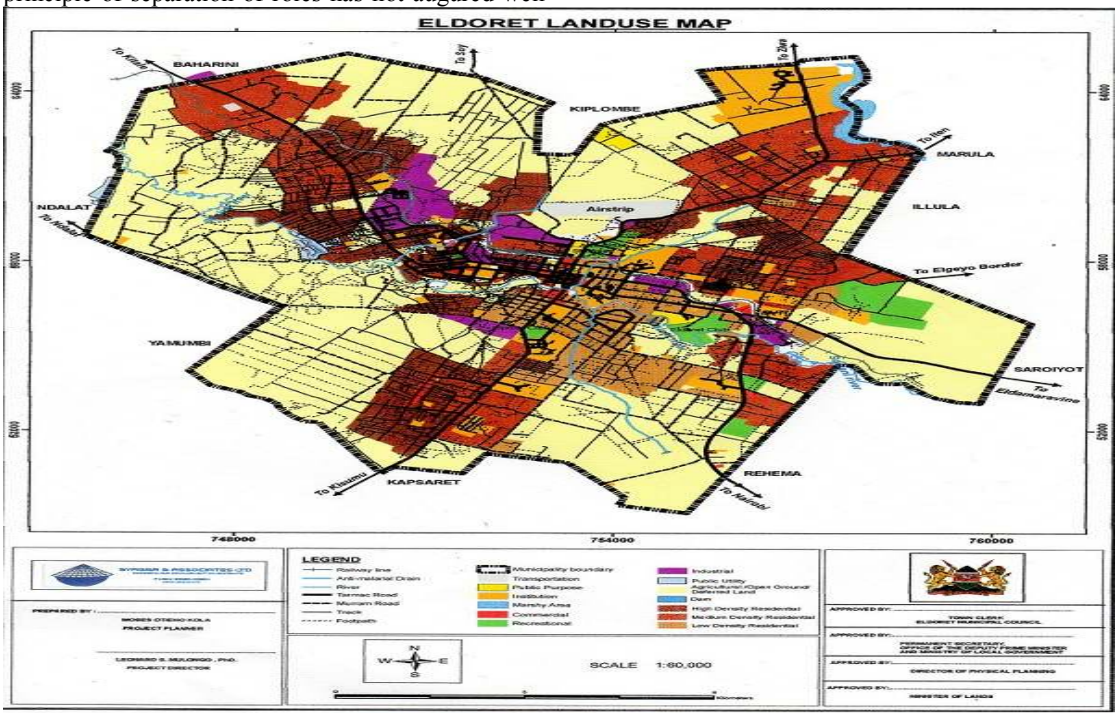
Table 1.1 Urban Environmental Development Control Tools

Development control Institution/ Instrument	Urban development control tools	Stage and process
Physical Planning PPA, Cap 286	PPA 1: Comments sheet Application for development permission	Application/Submission
	PPA2: Notification /Approval Deferment/ Refusal of Development permission	Approval
	PPA 5:Certificate of Compliance	Completion of building
	PPA 8,PPA 9: Appeal against refusal to approve	Approval stage
National Environmental Management Authority (NEMA) EMCA, 1999	EIA project Report	Application
	EIA License	Approval
	EIA/ Audit	Operation
	Stop order	Operation
	Public participation	Continuous
Urban Areas and Cities Act 2011, Eldoret Municipality By laws 2008	PPA 1: Application for development permission	Application/Submission
	Application for approval of plans Form, Building by laws 1968	Application/Submission
	Circulation Form	Circulation/Approval
	PPA 2: Notification of approval, refusal to approval	Approval
	Job card/Building Inspection Card	Construction
	Occupation Certificate	Completion stage
Public Health Act cap 242	Application /site inspection Form	Application
	Occupation certificate	Completion

Source: Author's Document Analysis, 2013

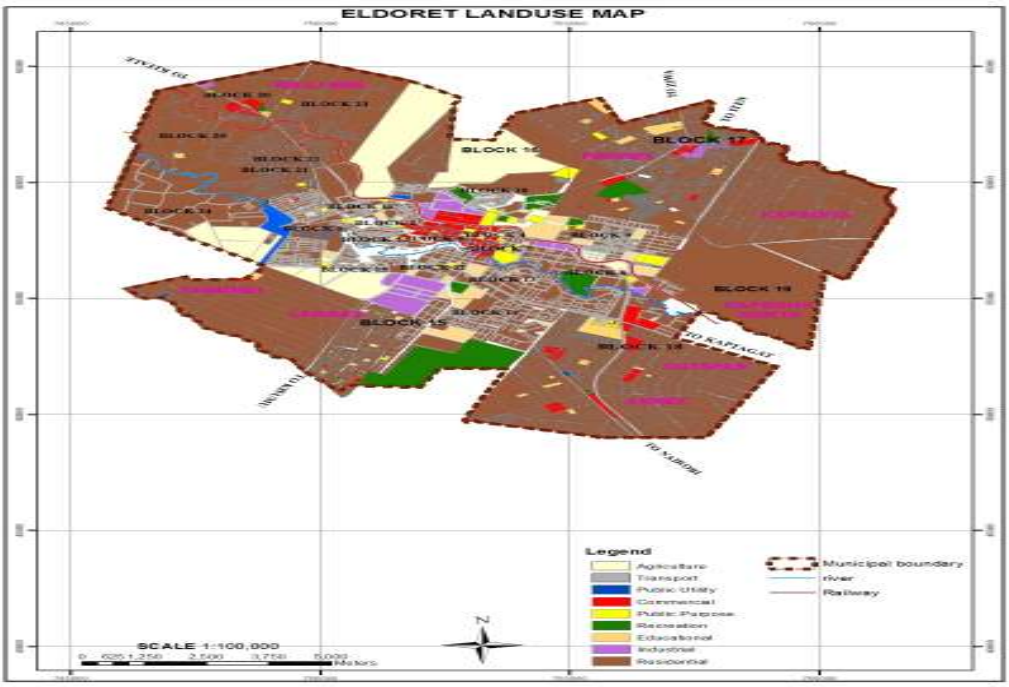
Development Control Plans and Development Trends in Eldoret Municipality

In Kenya plan making process is vested in the office of the Director of Physical Planning while the County Governments are responsible for plan execution. This principle of separation of roles has not augured well for sustainable urban development as the preparatory authority is not the implementing authority. This has resulted in well designed plans being ignored by the implementing authorities. Ndegwa (2001) suggests that for the implementing authorities to put plans effectively into practice, they should be required to table plans for ownership and adoption in their meetings. The plans which have contributed to the spatial ordering of Eldoret town are mainly the Local physical development plans which consist of Advisory plans, Zoning plans, Structure plans, Part Development Plans (PDPs) and subdivision plans. Local Physical Development Plans (LPDP) provide detail basis for land use policy of the entire town or part thereof. The Eldoret Town Physical Development plan no. ELD 17/81/13 of 1981 is still being used as a legitimate development control tool and it covers the CBD and its immediate environments. It was prepared under the Town planning Act Cap 134 which is as good as prepared under PPA Cap 286.Figure 1.3 shows the proposed Eldoret Town Physical Development plan 2008-2030. The major proposals and recommendations include; increased housing supply, slum upgrading, delivery of community facilities and infrastructure, efficient transportation planning, environmental protection and heritage conservation and economic investment strategy (Kenya, 2010).Figures 1.4-1.9 shows various spatial plans that have influenced the development patterns of Eldoret town.

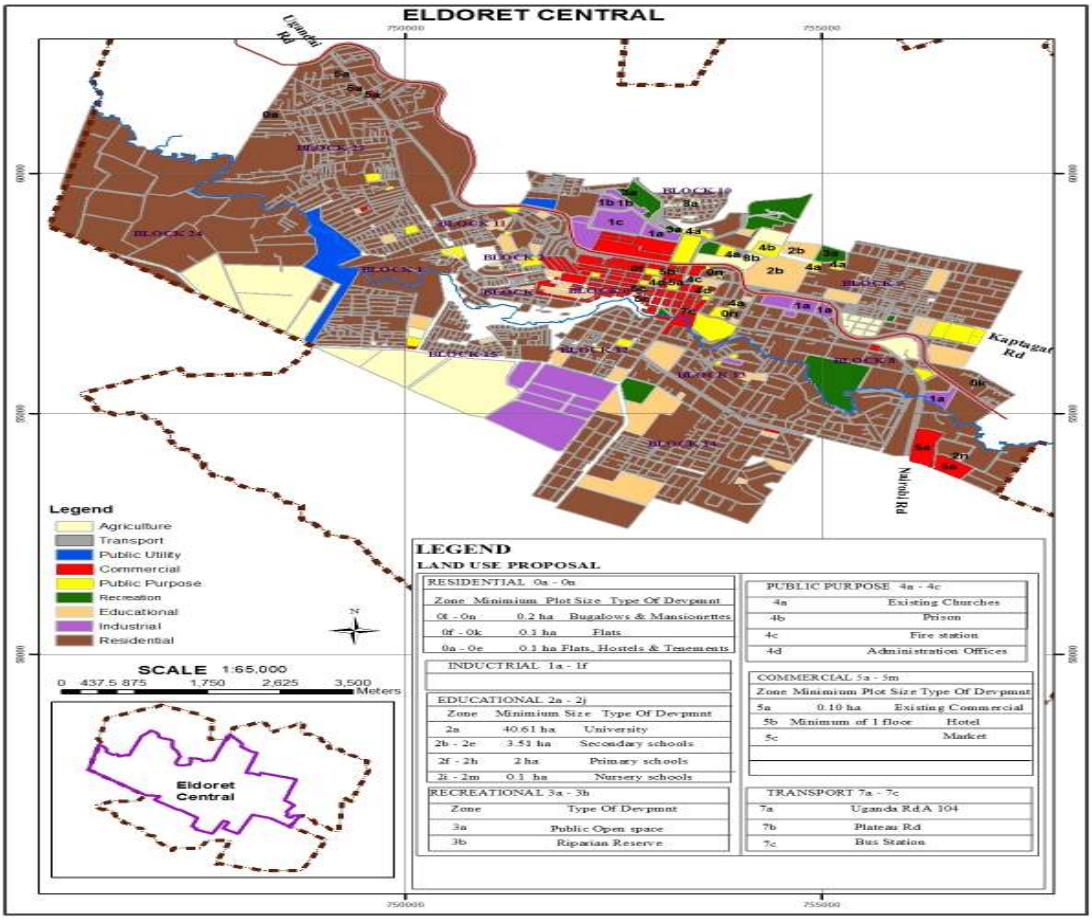


Source; Kenya (2010)

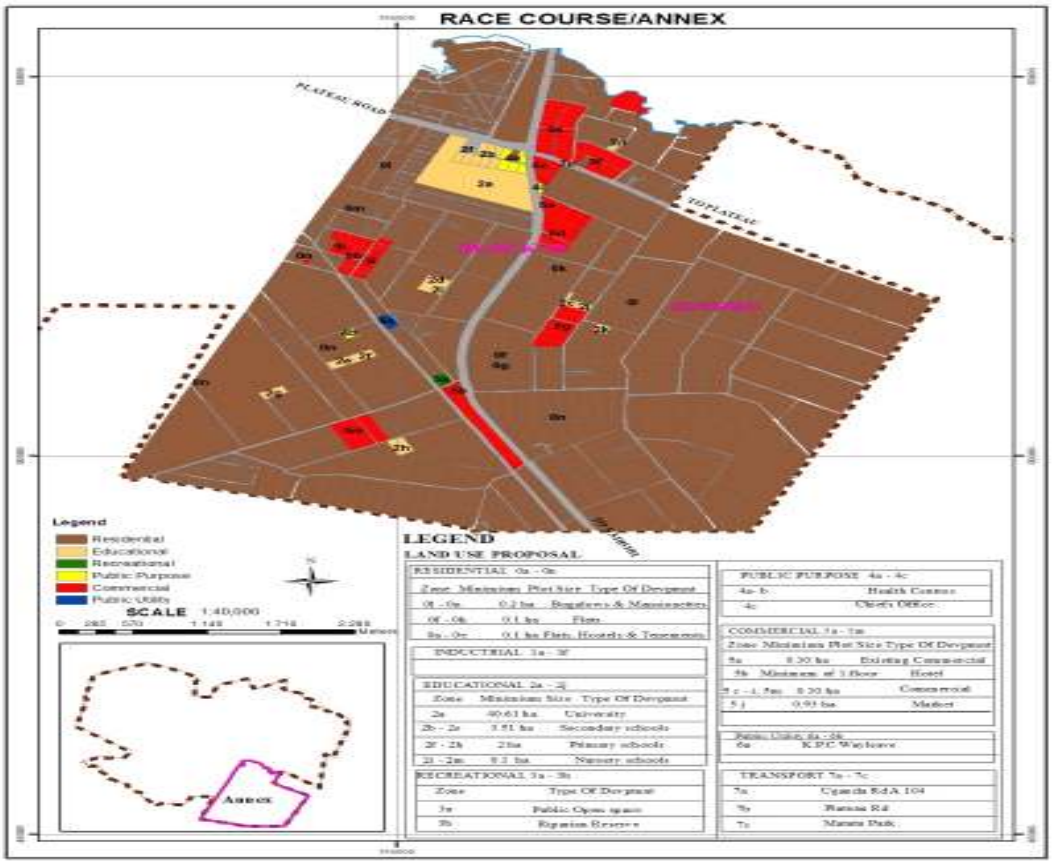
Figure 1.3: Eldoret Town Local Physical Development Plan, 2008-2030



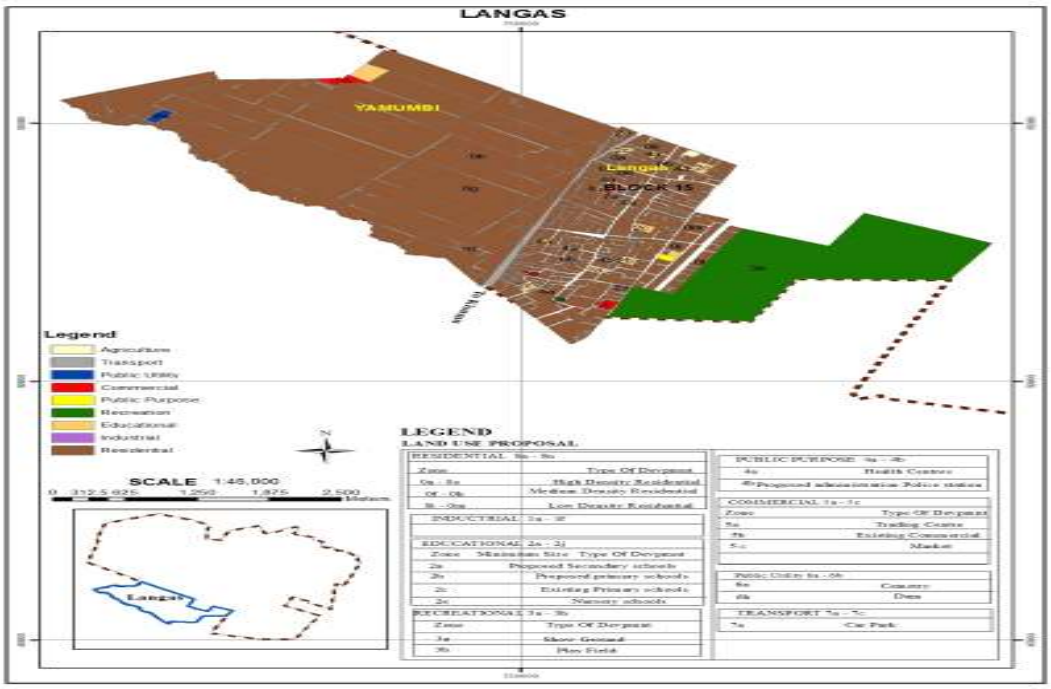
Source: Field Data Analysis, 2013
Figure 1.4 Existing Land Uses in Eldoret Town



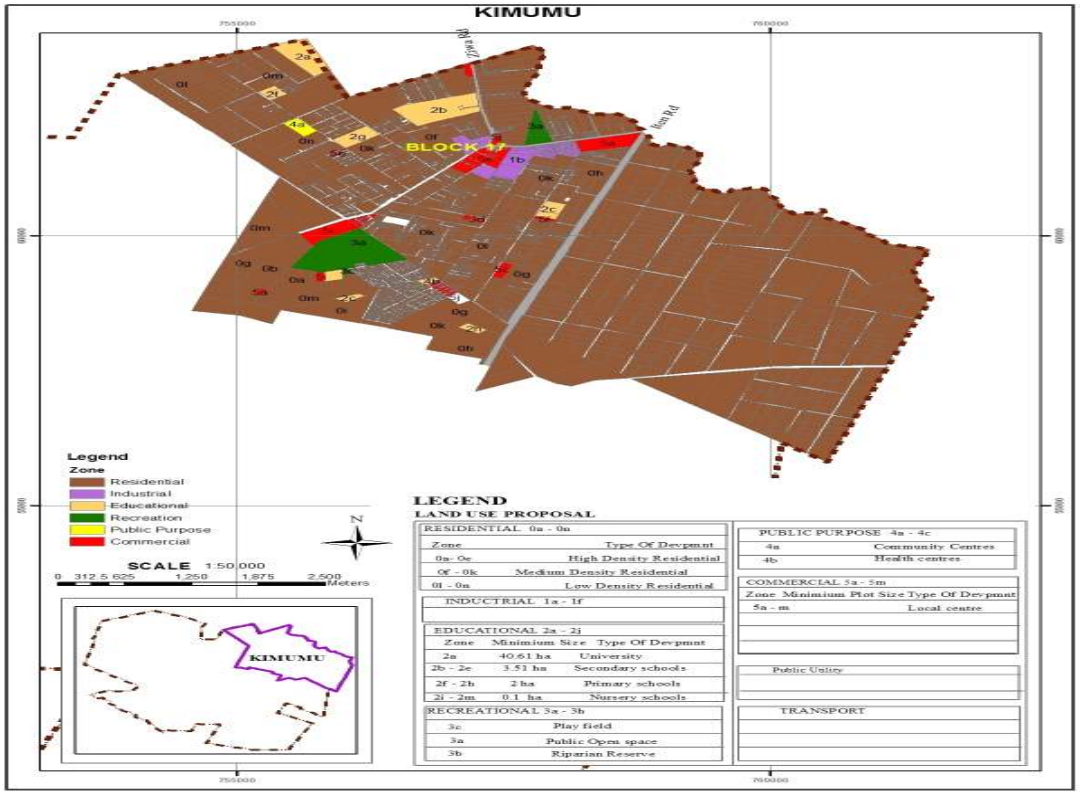
Source: CPPO 2013
Figure 1.5: Eldoret Town Central Business District and its Environs



Source: CPPO, 2013
Figure 1.6 Eldoret Municipality's Moi Annex Section, Zoning Plan

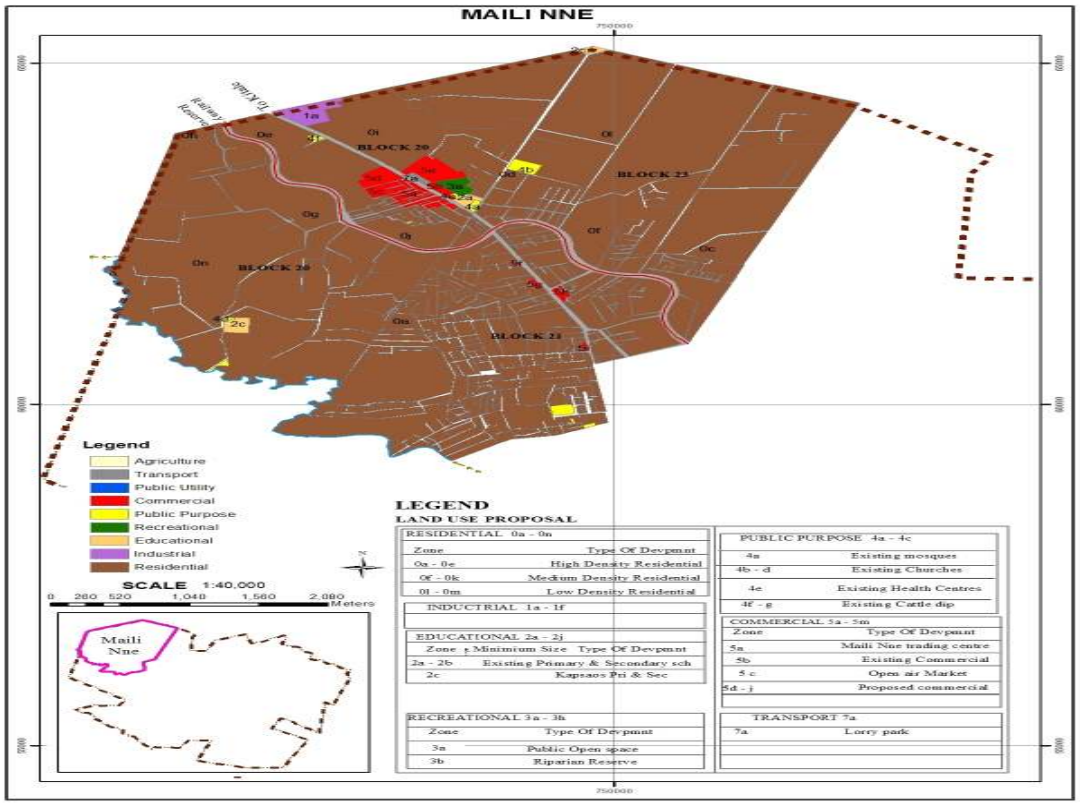


Source: CPPO, 2013
Figure 1.7: Eldoret Municipality's, Langas Informal Settlement Development Plan



Source: CPPO, 2013

Figure 1.8 Eldoret Municipality's, Kimumu Section Structure Plan



Source: CPPO, 2013

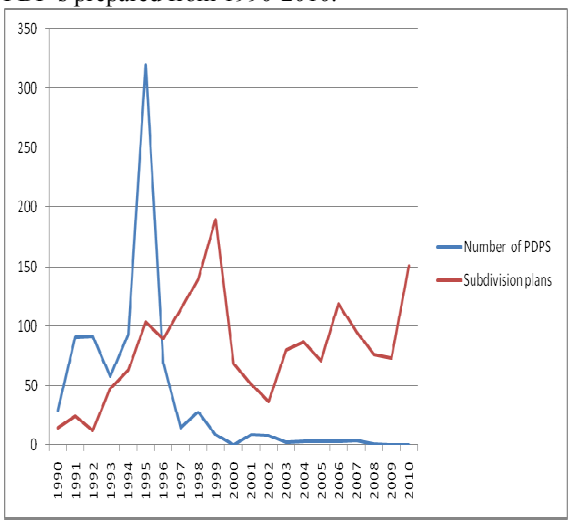
Figure 1.9 Eldoret Municipality's, Maili Nne, Block 20, 21 and 23, Section Zoning Plan

Components of Urban Development Control

The elements of urban development control include Part Development plans, Sub divisions, change of user, extension of user, extension of lease, and the building plans. These elements of urban development are implemented leading to the way the towns spatially get organized. In the process of their actualization, the urban environment could seriously be placed at risk. An examination of these urban development control elements is important in the establishment of the actual status of development control in Eldoret Town.

Part Development Plans

Part development plans (PDP's) are plans which are prepared on the basis of an approved Physical Development plan. It indicates precise areas identified for immediate use and for alienation. It is this instrument that has been abused or used in the past to identify and allocate plots reserved for public utilities, riparian reserves and other environmentally sensitive areas, for private use. Figure 1.10 depicts PDP's prepared from 1990-2010.



Source; Document Analysis, 2013

Figure 1.10, Part Development Plans and Sub-division Plans Prepared from 1990-2010

From the above figure; it should be noted that there were two legal regimes which were used to prepare PDP's, from 1990 to 1998 when the town planning Act Cap 134 was in force while PPA became operational fully from 1999. Under the old legal regime, there were many PDP's which were prepared compared to the few PDPs prepared from 1999 to 2010. In 1995 a total of 320 PDPs were prepared for plot allocation which was the highest number to be prepared in Eldoret Municipality in 20 year period. The explanation given is that this was the peak period when plots were being allocated like a hot cake after the introduction of multi-party politics in Kenya. The plot allocation led to the abuse of urban development instruments resulting in conversion of public utilities and fragile environments for private interest. From 1999 to 2010 when PPA was in force, preparation of PDPs has been on a declining trend. This is attributed to the stringent procedures introduced under PPA involving advertisement and Gazettement of PDP's prior to approval and subsequent allocation that has bared many land speculators from looking for land as the process elicits objections. Secondly the embargo placed on land transactions following the change of political of guard and regime from KANU to NARC in 2002, stopped the preparation of PDPs and other associated land transactions. The demolition of building structures which had been erected earlier on road reserves and on land reserved for public utilities such as schools, in an effort to correct the past mistakes done, controlled the appetite for land by land speculators and hence the reduction in the number of land transactions. Land reforms have also taken place since 2002 and which culminated in the adoption of the New Constitution of Kenya 2010 and subsequent enactment of Land laws including, National Land Commission Act 2012, Land Act,2012, Land Registration Act 2012 and the Environment and Land Court, all of which have urban development control jurisdictions. The Land laws provide a framework on how public land is to be acquired and thereby determining when a PDP is to be prepared. The few PDP's prepared from 2002 to 2008 were mainly designed for public institutions like schools with proper government approval.

Sub-Division Plans

Land subdivision is a development control tool. In a place where there is no master plan to guide layout development of a town, a subdivision plan is used as a premise for decision making. A subdivision plan is used to actualize proposal of LPDP, and specifies zoning density of an area. Figure 1.10 shows trends in land subdivisions in Eldoret Municipality from 1990-2010.The subdivision plans prepared during the twenty year period depicts a trend that has been fluctuating over time. The trend of land subdivisions is not realistic as the town has been recording rapid growth at the estimated rate of 8% per year and hence land subdivisions and related development should have been on the upward trend. This shows that land subdivision has not been an effective development control tool. From the perspective of the land subdivision, Figure 1.11 Shows the various elements of urban development control as processed from 2005 to 2011 period.

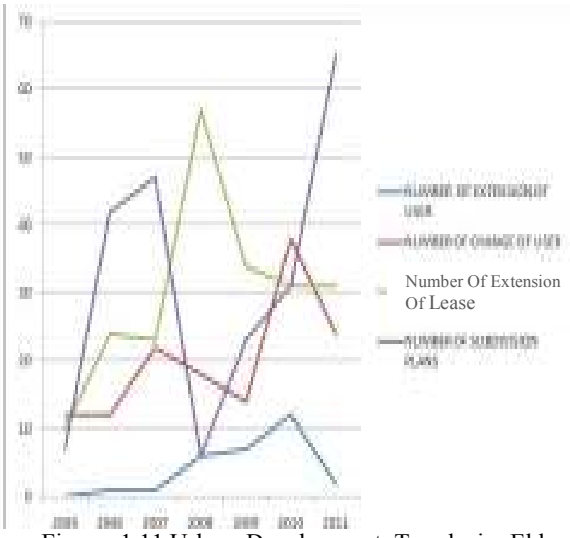


Figure 1.11.Urban Development Trends in Eldoret Municipality
Source; Document Analysis, 2013

The two Figures 1.10 and 1.11 when compared, indicates that the number of land subdivisions processed according to the years, are not the same for EMC as well as in Physical Planning Department, a clear indication that that the two institutions are not working in harmony. The land subdivision mutations are registered and the Registered Index Maps (RIM) are amended without reference to EMC and the Physical planner. These situations facilitate development of shanties and associated negative environmental problems. Musyoka (2004) avers that informal settlement which spring up as a result of informal subdivisions ends up being regularized or formalized by Planning Authorities. The PPA has no mechanism for dealing with developed areas as development permission is only applicable to the proposed development on vacant plots. In other jurisdictions such as the United Kingdom, certain developments are except under General Development Orders (GDO), Use Class Orders and Simplified planning zones. A modified planning permission may be sought by the applicant with a developed property.

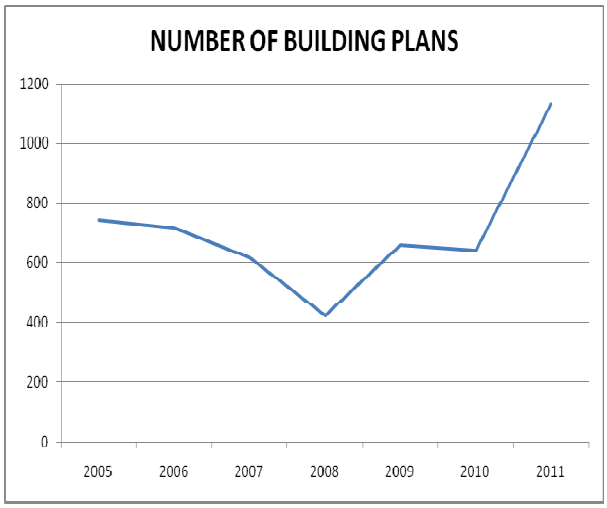
Change of User, Extension of User and Extension of Lease

The change of user, extension of user and extension of lease are interrelated elements of development control which contribute towards making urban areas to be what they are. They can be used to monitor land use change in the urban setting. Change of user entails substituting the existing function of the plot for another different user while extension of user involves introducing another different user to share the same space in the plot. In the case of extension of lease, it means renewal of lease to reflect an extra term of ownership. Figure 1.11shows trends in change of user, extension of user and lease renewal in EMC from 2005 to 2011.

On average, the tables indicate that application of change of user, extension of user and extension of leases elements of development control are on the increasing fashion, a clear indication of rapid urban growth and its concomitant environmental effects.

Analysis of Building Plans

Buildings or structures contribute to negative environmental impacts more than other development control elements of change of user, extension of user, extension of lease, land subdivisions and PDP's. Buildings are associated with the construction industry which is a major contributor to the environmental crisis through resource depletion, energy consumption, air pollution and generation of waste (UN Habitat, 1999). The physical growth of a town is measured in terms of the structures which have been built in the urban area. Figure 1.12 shows the trend in submission of plans in EMC from 2005-2011.



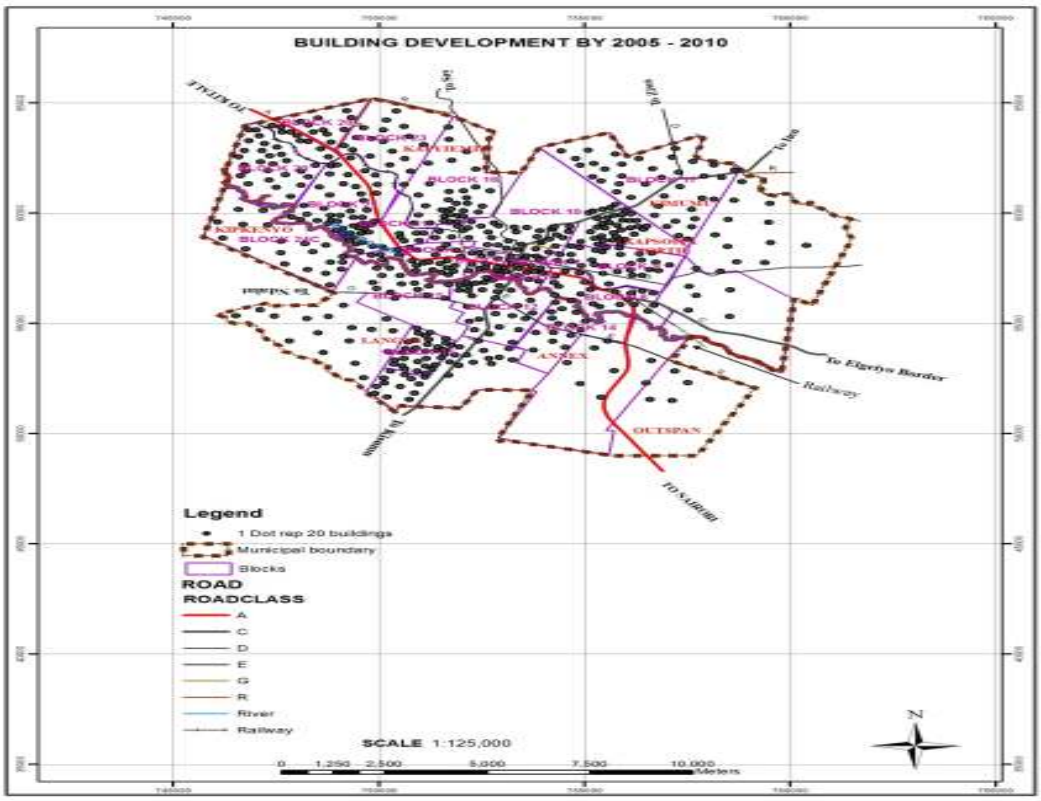
Source; Document Analysis, 2013
Figure 1.12 Approved Building Plans in 2005-2011

It is clear from the Figure that there was a drastic decline in the number of building plans processed in EMC from 619 numbers of applications in 2007 to 423 in 2008. This represented a decline of 32%. The decline is attributed to post election violence of 2007 and 2008 which erupted spontaneously following the disputed election between Party of National Unity (PNU) and Orange Democratic Movement (ODM). The impact of post election violence was that the investors shied away from investing in Eldoret town for some time. There was again rapid increase in the number of building plans processed by EMC in 2010 to 2011, from 642 to 1134 building plans respectively, a clear indication of restored investor confidence and climate in Eldoret Municipality.

Projection of Building Plans and Plot Coverages

The analysis of the rate at which building structures sprung up from 2005 to 2011 revealed that a total of 4941 building plans had been processed by 2011. On

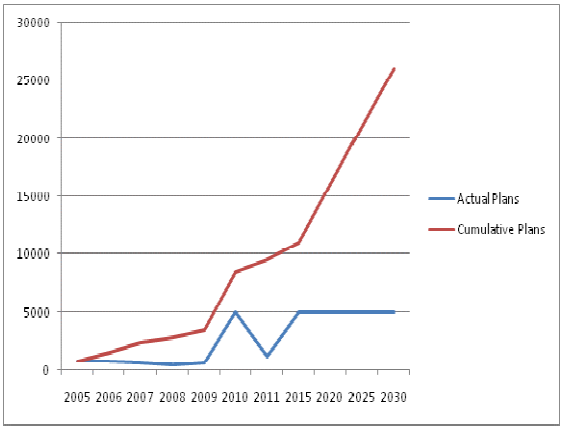
average it is estimated that the ground coverage occupied by a building in a plot was 50% or equivalent to about 200m^2. It therefore implies that over 988,200m^2 of land in the entire EMC had been built up or covered by the year 2010. This translates into total land coverage of about 1 Km^2 in EMC, leading to numerous environmental problems. Figure 1.13 shows extrapolation of buildings in EMC by 2010.



Source; Based on Document Analysis
Figure 1.13 Spatial distribution of buildings constructed in EMC from 2005- 2010

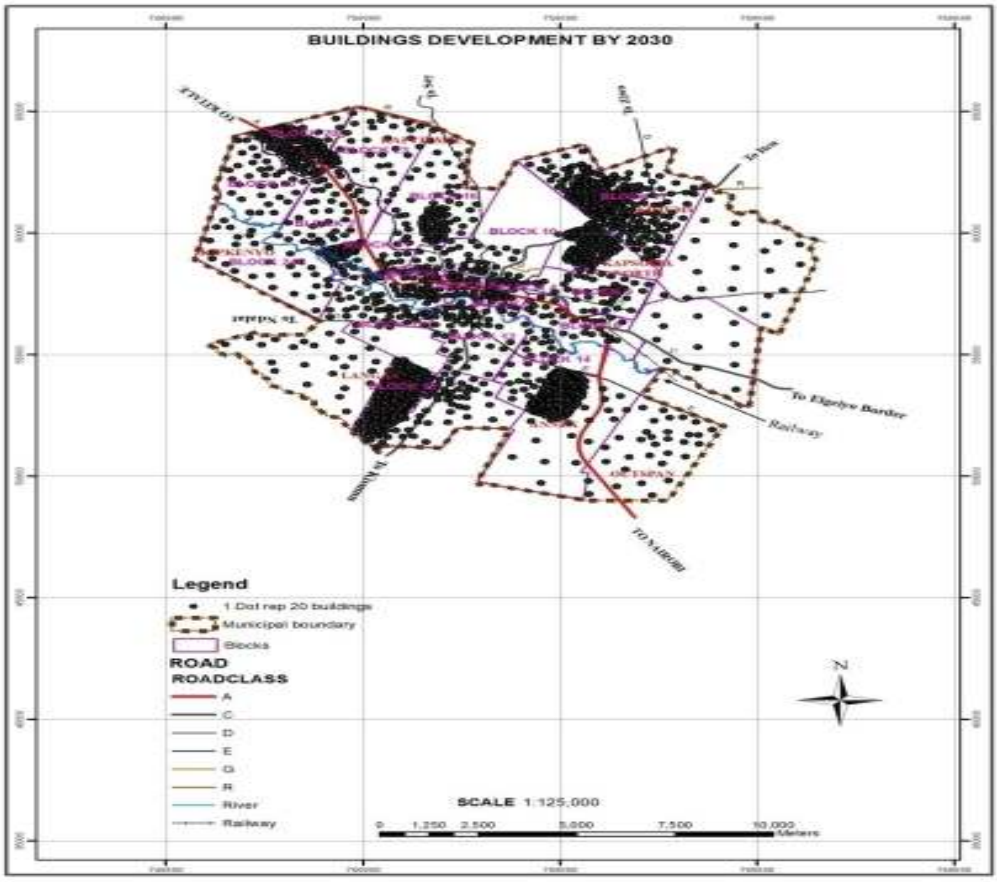
Projected Developments in Eldoret Town by 2030

It is projected that by the year 2030 the urban population in Kenya is expected to reach a target of 38.2 million (Kenya Vision, 2030).Eldoret town is expected to make a significant contribution in increasing the numbers of urban population in Kenya as its growth is considered to be one of the highest. This means that the town is going to attract a lot of developments as Kenya Vision 2030, which is a long term development blue print is being actualized. The vision 2030 aims at making Kenya to be a globally competitive and prosperous country with a high quality of life by 2030. It aims to transform Kenya into "a newly industrializing, middle-income country providing a high quality of life to all its citizens in a clean and secure environment." (Kenya Vision, 2030). This underscores the need to devise effective urban development control tools for sustainable urban livelihoods that will make the country to achieve the Vision by the year 2030. Based on the past scenario analysis, it is projected that by 2030, Eldoret town is expected to induce urban developments in form of buildings up to over 20,000 buildings of various land uses including residential, commercial, industrial, educational public purposes, public utilities and transportation. The developments of Eldoret is to be accentuated by the implementation of devolved government structure involving decentralization of resources to the County government of Uasin Gishu,and more so to Eldoret town.



Source: Projected from Field Data, 2013
Figure 1.14 Extrapolated Spatial Distribution of Building Developments in EMC By 2030

From the Figure above, it is estimated that on average between 706 and 1000 building structures will be generated per year such that by 2030, 20,000 building developments will have been processed or built. Figure 1.15 shows building plans development scenario by 2030.



Source; Based on Document Analysis

Figure 1.15 Projected Development Patterns in Eldoret Municipality By 2030

The figure indicates that 1 dot represents 10 buildings which are spread all over EMC. The past estimates of plot coverage revealed that about 200m^2 is covered by a building in one plot. From this analysis it is extrapolated that by 2030 the land that will be covered by buildings will be approximately 4km^2. There will be densification of development in the entire EMC area and especially areas surrounding Maili Nne, Pioneer-Ngeria, Annex area, vacant spaces in Kimumu, Chepkoilel area, Kipkenyo and Yamumbi areas. This implies that EMC is likely to experience a myriad of environmental problems including; increased surface runoff and flooding, pollution, proliferation of slums, traffic congestion, competing land uses, and loss of biodiversity amongst other deleterious environmental problems. The EMC and other stakeholders will therefore need to review urban development control instruments and practices for better urban planning and management.

Recommendation for attenuation of Environmental Problems of Urban Development Control

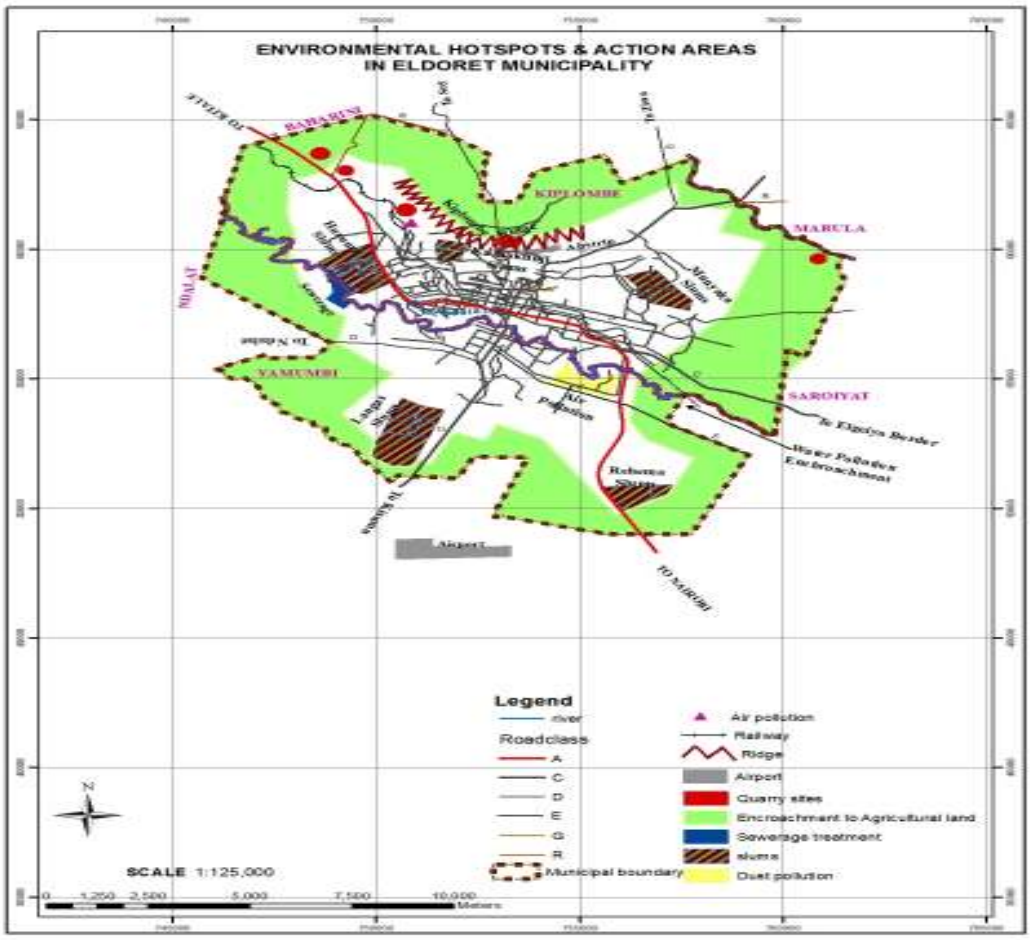
The environmental problems associated with urban development control in Eldoret town include; proliferation of shanties, building on environmental fragile environments, encroachment of road reserves; water, air and terrestrial pollution. Table 1.2 gives detailed environmental problems which dot across EMC, identifying the causes and plausible mitigation measures.

Table 1.2 Environmental problems of Urban Development Control and Mitigation Measures

Neighbourhood/ Urban zone	Environmental Issues/ Problems	Causes	Mitigation measures
Maili Nne, Block 20,21,23	Proliferation of Slums e.g. Bondeni, Shirika, Baringo, Kingongo, Keroka, Bondeni, Emkoi, Umoja	-Uncontrolled land subdivision and development of poor structures	-enforcement of planning standards -control sub-division -slum upgrading -provision of sewered sanitation -increase surveillance
	Water pollution of River Sosiani	-farming along river Sosiani -direct discharge of wastes -development along the rivers -washing of vehicles	-enforcement of EMCA -cleaning of river Sosiani -maintenance of 30m riparian reserve -tree planting along river Sosiani -provision of sanitary infrastructure
	Lack of public utilities such as schools, playgrounds and green areas	-population pressure -non-provision of public utilities -selling of 4% of surrendered land by previous owners and brokers	-acquisition of land for public utilities -repossession of grabbed land -enforcement of planning standards
	Encroachment of agricultural land Milimani hill-Kiplombe ridge	-settlement expansion e.g.IVC church area quarrying -creation of roads	-enforcement of EMCA -Regulation of quarrying -zoning of escarpment as a conservation area and tree planting -rehabilitation of quarries
	Flooding/surface water run-off	-increased construction activities -de-vegetation -farming activities -blocked drains -building along streams and natural water drains	-control of developments -protection of natural water drains -unblocking of drains -provision of sewered sanitation
	Quarrying activities, Sirikwa quarry pits	-causes cracks in buildings -demand for building materials	-rehabilitation of disused quarry -regulation of quarry under cap 306 of Mining Act -Enforcement of EMCA
	Blocked roads and poor accessibility	-Construction of building on road reserves -narrow roads	-opening of roads -grading of roads -removal of structures on roads
	Parking of Lorries along A104, Eldoret –Webuye road	-location of Kenya pipeline company -lack of parking spaces -location of Petrol Service Stations	-provision of parking facilities -restriction of lorries to Maili Nne Lorry park
	Terrestrial pollution	-indiscriminate disposal of wastes including polythene papers -washing of vehicles along streams -leachate from pipeline	-proper disposal of wastes -provide wash bays -enforce NEMA regulations
	Land use conflicts	-conflicts of roads, land ownership, change of user from e.g. residential to religious user, bars and churches	-use of Municipal physical planning liaison committees,and Environment and land Court Act,2011 -enforcement of zoning regulations
	Air pollution	-Lorries along A104 -Dust pollution during dry season -smoke from Raiply	-enforce EMCA regulations, on mitigation measures
	Loss of biodiversity	-settlement of escarpment -quarrying activities -cutting of trees by KPLC for power supply	-tree planting -encourage environment friendly designs -enforcement of EMCA
LANGAS	Overcrowding	-non- adherence to planning standards -poverty	-slum upgrading -economic empowerment programmes -enforcement of standards
	Blockage of roads	-non-enforcement of regulation -unauthorized construction -hawking	-unblocking of roads -surveying of plots and roads -acquisition of roads
	Garbage disposal	-non-collection of garbage by EMC -indiscriminate waste disposal	-extend privatization programme of solid waste to Langas -provide designated waste collection points
	Boundary and land dispute	-unsecure land tenure	-provision of security of tenure -surveying of plots

			-solving of disputes
	Roaming livestock especially pigs	-urban agriculture -poverty	-enforcement of Municipal By-laws -explore alternative income generating activities
	Noise pollution	-vehicles -churches and mosques -radio/music players	-Enforcement of NEMA regulations on noise
	Water pollution	-disposal of waste -high water table -lack of sewered sanitation services,	-provision of extended sewer connections -enforcement of laws -provision of piped water
	Poor drainage and flooding	-high water table -lack of drains -blockage of drains -high plot coverage	-mapping and opening of drains -enforcement of development control standards -provision of sewered sanitation
	Lack of public utilities such as schools, playgrounds, markets, parking, health centres	-poor planning -land disputes -no compensation given to original owners for surrender of land	-acquisition of land for public utilities -enforcement of planning standards -repossession of grabbed land
	Insecurity,as a social environmental problem	-poverty -thuggery -inadequate security personnel	-enforcement of community policing -regular patrols -opening of roads for patrols
KIMUMU	Ribbon pattern of development along Iten-Chepkoilel road	-non-enforcement of building lines and set backs -poor development control	-enforcement of planning standards -revision of Kimumu structure plan -demolition of illegal structures
	Land ownership and disputes	-grabbed public land e.g. dip built with storey buildings	-repossession of land -acquisition of land -compensation measures
	Encroachment of wetland and fragile areas	-construction of settlements -farming activities	-enforcement of EMCA -protection of wetland/fragile areas
	Pollution of River Marura and streams	-car washing -discharge of waste -buildings near rivers/streams	-enforcement of NEMA -maintenance of 30m riparian reserve -acquisition of privately owned fragile areas
	Blocked drains near Subaru, Peris and Chebarus areas	-construction of buildings	-unblocking of drains -protection of rivers and streams -acquisition of privately owned fragile areas -compensation for built up areas
	Sinking and overflowing toilets near Sinai, Gituro and Rotterdam area	-construction on fragile areas -high water table -lack of sewered sanitation services	-provision of sewered sanitation -control of developments -protection of fragile ecosystems
	Roaming livestock; donkey, pigs and dogs	-urban agriculture -transport(NMT)	-enforcement of EMC by-laws
	Garbage disposal especially along the roads	-non-collection of garbage	-frequent collection of wastes -encourage private sector garbage collection -provide designated refuse collection points and toolkits
	Air pollution	-emission of smoke by steel Mill factory -quarrying and stone crushing	-enforcement of NEMA regulation on pollution
ELGON VIEW	Pollution of River Sosiani	-overflowing toilets in Sugunanga -car/matatu washing/ -farming, urban agriculture, including green houses	-provide sewered sanitation -provide car washing bays -enforce EMCA regulation
	Air pollution	-vehicular movements along untarmacked roads(dust pollution) -industrial pollution by CPC factory	-tarmacking of roads, -wetting of roads during dry seasons -enforcement of air pollution regulations
	Land use conflicts	-location/change of user to accommodate bad neighbourhood developments -incompatible uses	-strict enforcement of zoning standards and by-laws -resolution of conflicts through Municipal physical planning liaison committee, and Environment and Land Court,2011

Source: Field Data, 2013



Source: Field Data, 2013
Figure 1.16 Environmental Hot Spots Associated with poor Development control in Eldoret Town

REFERENCES

Architectural Association of Kenya (2011a): A study on Development Control Frameworks in Kenya, AAK Nairobi.

Architectural Association of Kenya (2011b): The Role of Built Environment Practitioners in the Implementation of the Constitution, AAK, Nairobi.

ISOCARP (2010): Congress Papers introductory reports short outlines of papers. ISOCARP Hague. 46thCongress Nairobi.

Leautier F (2006): Cities in a Globalizing World, The World Bank,Washington D C.

Muigai K (ed)(1995): Implications of Agenda 21 for the System of Urban and Regional Planning in Kenya, Report of the Workshop held on 27th-29th March 1995, Moi University.

Musyoka R.M (2004): Informal Land Delivery Processes in Eldoret, Kenya. Summary of findings and Policy Implications, University of Birmingham.

Republic of Kenya, UN (Habitat) et al (1999): Nakuru Strategic Structure Plan, Volume II Ministry of Lands. Nairobi.

Republic of Kenya (1996): Physical Planning Act Cap 286 of the Laws of Kenya, Government Printer, Nairobi.

Republic of Kenya (1999): The Environmental Management and Coordination Act No. 9 of 1999.

Republic of Kenya, (2010): Municipal Council of Eldoret Strategic Urban Development Plan 2008-2030. Office of the Prime Minister and Ministry of Local Government, Nairobi

UN Habitat (1999): Report on the Regional Workshop on Housing and Environment, Habitat, Vienna.

World Bank, (2014): Draft Concept Note for Kenya Urbanization Review, Kenya's Devolved Framework, Paper Presented on 15th May 2014 in Kakamega.