

Assessment of the Adequacy of Environmental Laws to Environmental Management in Kenya

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Abstract: Environmental law is an essential tool for the governance and management of the environment and natural resources. Therefore, it must guide the management of waste and guarantee the sustainable use of natural resources. Lawlessness and inadequacy contribute to Kenya's environmental degradation. The analysis provides a comprehensive assessment of current environmental laws, their enforcement levels, and a constructive comparison of their effectiveness against optimal environmental management practices. This paper will identify the law's shortcomings, elucidate the underlying causes, and provide a practical suggestion to enhance the law's effectiveness in promoting better environmental governance and management of natural resources. The assessment concentrated on examining various environmental laws, such as the Environmental Management and Coordination Act (EMCA 1999), the Water Act 2002, the Local Government Act (Cap 265 of the Laws of Kenya), and the Public Health Act (Cap 242 of the Laws of Kenya), among others. We also scrutinised government institutions such as the National Environment Management Authority (NEMA), Water Resources Management Authority (WRMA), and local authorities, which are responsible for managing the environment and enforcing environmental laws. The analysis revealed weaknesses in the law that governs the disposal of e-waste and air pollution control. These weaknesses include the absence of guidelines and quality standards, the lack of enforcement of the law that requires the segregation of some solid waste and industrial effluent pre-treatment, and the underfunding of government institutions, which is blamed for the low enforcement and lack of environmental monitoring programs.

Keywords: E-waste, air pollution, industrial effluent, solid waste

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INTRODUCTION

One of the most effective ways to manage the environment is to enact and enforce laws that regulate and control emissions to the environment, setting standards for environmental parameters and pollutants (UNEP, 1999). Criminalizing certain activities that could potentially harm the environment (known as environmental misconduct) or the general health of the population can also contribute positively to sound environmental management.

Human activities create two main environmental problems, which effective environmental legislation should address.

1. Use of resources at unsustainable levels, and
2. Contamination of the environment through pollution and waste at levels beyond the capacity of the environment to absorb them or render them harmless.

The law needs to protect against surface water, groundwater, and air pollution, land and forest degradation, and safeguarding human health, among other objectives (Opiyo R., 2009).

Kenya has a variety of laws aimed at achieving these universal goals, but the primary obstacle to achieving these objectives is the enforcement of these laws, a challenge that arose after their passage. These legislations include the Environmental Management and Coordination Act (EMCA 1999), the Water Act 2002, the Local Government Act (Cap 265 of the Laws of Kenya), the Public Health Act (Cap 242 of the Laws of Kenya), and the Forests Act 2005, among others.

The constitution of the Republic of Kenya recognises that Kenyans are respectful of the environment and gives every person a right to a clean environment. Further, it gives the state the responsibility to eliminate activities that endanger the environment.

Environmental problems in Kenya, such as liquid and solid waste disposal, building on river riparian reserves, air pollution from industrial zones, degradation of forests and wetlands, handling of e-waste, and hazardous waste, among others, form the basis of the assessment of the various laws addressing these issues.

METHODOLOGY

This paper is mainly a desktop study of various laws governing the management of the environment in Kenya. Qualitative analytical skills and techniques were employed in analysing the laws so as to determine their effectiveness and levels of enforcement. Photographic evidence was also used to show the disconnect between the provisions of the law and the actual ground practice. An appraisal of the government institutions charged with the responsibility of environmental management, like NEMA, WRMA, and local authorities, was also done by evaluating their operations, management, and functions geared towards enforcement of the law and environmental protection.

The study was organised to ensure a methodical scrutiny of the law regarding protection of surface waters, groundwater, and air against pollution, solid waste management, and safeguarding of human health from preventable environmental hazards.

OVERVIEW OF VARIOUS ENVIRONMENTAL ASPECTS AND THE LAW REGARDING THEIR REGULATION

1. Air pollution

- Environmental Management and Coordination Act 1999

This is an Act of Parliament to provide for the establishment of an appropriate legal and institutional framework for the management of the environment and for the matters connected therewith and incidental thereto. The Act of Parliament establishes the National Environment Management Authority (NEMA), whose functions include coordinating the lead agencies' various environmental management activities and promoting the integration of environmental considerations into development policies.

The EMCA 1999 Section 78 (1) provides provisions for the establishment of air quality standards, criteria, and guidelines for controlling air pollution from both mobile and stationary sources. Currently, the Environmental Management and Co-ordination (Waste Management Regulations) 2006 lacks quantified guidelines for air quality standards and regulations that control air pollution.

- The Penal Code, Cap. 63

Part XVII of the Penal Code. Cap 63 contains a chapter on "Offences against Health and Convenience" in Sections 191-193. The Code strictly prohibits the release of foul air that affects the health of other

persons, with which, in contravention, the accused may face imprisonment not exceeding 1 year—no option of a fine. The Penal Code aims to control pollution for industries, but the subjective nature of terms like "foul air" and "smells" makes them difficult to prove in a court of law. In fact, "offensive" or "unwholesome" smells are not defined.

- Factories Act, Cap 514

The Factories Act, Cap 514, revised in 1972, is an Act of Parliament to make provision for the health, safety, and welfare of persons employed in factories and other places of work. In 1990, they amended it to prohibit the emission of "dust," fumes, or impurities into the atmosphere without undergoing treatment, thereby preventing air pollution and other adverse effects on life and property. This amendment now prohibits any stationary combustion engine from discharging exhausts without treatment or emission reduction, with the aim of preventing air pollution and any potential harm to life or property. Additionally, Part V on Air Receivers mandates the implementation of precautionary measures in areas where dangerous fumes are likely to occur, particularly in relation to explosive or inflammable dust or gas.

Notably, the Act does not provide guidelines on the design of chimneys and stacks or specifications of what constitutes "dust" and what constitutes "gases," which are health-related. The Act neither has a comprehensive list of poisonous or harmful gases nor a monitoring regime for dust and particulates.

- The Traffic Act, Cap 403 (Rev. 1978)

Section 51 of the Traffic Act Cap 403 (Rev. 1978) mandates the use of proper fuel for motor vehicles, potentially leading to a reduction in pollution. The Act includes specific provisions mandating the construction, maintenance, and use of every vehicle to prevent smoke emissions.

This act allows for the adulteration of vehicle fuels because it does not specify the additives, unlike leaded gasoline. Unless the fuels are in the Vehicle Inspection Units (VIU), which have inherent limitations, traffic police find it challenging to verify them is a requirement for commercial vehicles. These Vehicle Inspection Units (VIUs) conduct visual inspections for smoke emissions. The VIUs do not have emission measurement equipment. Kenya imports the majority of its vehicles, making the provisions on vehicle construction impractical.

We should enhance the Traffic Act to include standards and quantities for lead and sulphur in gasoline and establish guidelines for emissions from all vehicles in terms of volatile organic carbons (VOCs),

hydrocarbons, carbon dioxide, and nitrogen oxides (NO_x).

- The Local Government Act, Cap 265

The Local Government Act, Cap. 265, is concerned with a wide range of matters that affect the day-to-day activities of individuals and organizations. Section 163, Sub-section (e) empowers municipal councils, town councils, and urban councils to control or prohibit all businesses, factories, and workshops that, by reason of smoke, fumes, chemicals, gases, dust, smell, noise, or vibration, may be a source of danger or annoyance to the neighbourhood and to prescribe the conditions subject to which businesses, factories, and workshops shall be carried on. They achieve this by prescribing the necessary bye-laws and rules and enforcing them; and the authority may refuse, cancel, or withdraw licenses if it is not satisfied that the licensee has implemented sufficient preventive measures. However, the public often perceives these measures as punitive because they lack actual scientific measurements.

Most local authorities have established effective licensing procedures that incorporate a requirement for environmental impact assessment.

- The Public Health Act, Cap 252

This Act is one of the most widely implemented pieces of legislation on health and safety. The ministries

of health and public health have personnel at local authority, locational, and even sub-location levels. Part IX on Sanitation and Housing contains the most relevant sections regarding air pollution. Section 115 outlaws nuisances and gives local authorities the mandate to prevent them. Local governments create their own bylaws, but not all can investigate pollution. Section 118 calls for the application of Best Available Technology (BAT) to treat gases or vapors and remove dust. However, it does not specify the levels to be achieved; it appears that air pollution must be reduced to safe levels for humans. This Act's biggest weakness lies in its disregard for the fact that most harmful gases may not be detectable through sight or smell, making them ineligible for prosecution. We must address these weaknesses by incorporating physical or chemical indicators of pollution, such as property destruction, ecological impact, or disease prevalence. The penalties recommended by the Act in Section 121 are not deterrent enough. The Medical Officer of Health bears the responsibility of providing the necessary evidence. Rarely are medical personnel equipped with inspection capabilities for gaseous emissions.

The law ought to include non-point sources such as sewage treatment, solid waste disposal sites, mining and quarrying, building and demolition sites, and energy-generating facilities. The law should also adopt a comprehensive list of injurious chemicals and provide guidelines on fume and smoke stacks, lights, locations, and the degree of waste minimization.

Table 1: A summary of the laws and some recommendations for improvement

Law and Agencies	Recommendations
Environmental Management and Co-ordination Act (1999)	· Development guidelines on gaseous emissions standards and regulations controlling air pollution.
The Penal Code, Cap. 63	· Definition of "foul air" or smell · Punishment should be made more severe for environmental crimes and a minimum sentence introduced.
The Traffic Act, Cap 403 (Rev. 1978)	· Specify the additives to petrol. · Development guidelines for emissions of VOCs, HC, and NO _x · Noncommercial vehicles should also be required to take the annual vehicle inspection test.
Vehicle Inspection Units Local Authorities	· Equipped with modern vehicle emissions measuring equipment · Should devise procedures to determine noncompliance · Equipped with monitoring devices for specific air pollutants
The Public Health Act, Cap 252	· The law should also adopt a comprehensive list of injurious chemicals. · Give guidelines on fume and smoke stacks, light, location, and degree of waste minimisation. · Under Section 121, give more stringent penalties for offences
Factories Act, Cap 514	· guidelines on design of chimneys and stacks · Provide a comprehensive schedule of poisonous or harmful gases, dust, and particulates.

2. Water pollution

• Environmental Management and Coordination Act (EMCA 1999)

In exercising the powers conferred by Section 147 of the Environmental Management and Coordination Act (1999), the Minister for Environment and Natural Resources, in consultation with the relevant lead agencies, made the following regulations, cited as the Environmental Management and Coordination (Water Quality) Regulations 2006 (WQR).

These regulations apply to the quality of water used for drinking, industrial, agricultural, recreational, fisheries, wildlife, and other purposes.

Section 4(2) of the regulations prohibits anybody from throwing or causing to throw into or near a water resource any liquid, solid, or gaseous substance or depositing any such substance in or near it so as to cause pollution.

On either side of a river or stream, and as the Authority may from time to time determine, Section 6(c) forbids the cultivation or undertaking of any development activity within a minimum of six meters and a maximum of thirty meters from the highest ever recorded flood level.

The picture below illustrates the lack of enforcement of the above law; houses have been constructed on riparian land, and there is dumping on the riverbanks.

The second schedule of the regulation on the quality standards for drinking water conforms to the World Health Organisation (WHO) standards for drinking water and hence is adequate.

The third schedule of the regulations delineates the acceptable standards for effluent discharge into the environment. Section 12(1) mandates the issuance of an annual renewable effluent discharge license to every local authority, person operating a sewage system, and owner or operator of any trade or industrial undertaking

for the discharge of effluent into the environment. The licensee must meet the discharge standards.

The Environmental Management and Co-ordination (Waste Management Regulations (WMR)) 2006, under Section 15, requires pre-treatment of industrial effluent prior to discharge into the environment or public sewer systems.

However, NEMA's enforcement of this regulation has been inadequate, as most industrial establishments, including those in Nairobi's industrial area, do not pre-treat their waste before disposal.

Some buildings within the Riparian Reserve are part of the Lunga-Lunga Slums.

Source: Opiyo R, 2008 field survey

• The Water Act of 2002

This is an Act of Parliament to provide for the management, conservation, use, and control of water resources; the acquisition and regulation of rights to use water; the regulation and management of water supply and sewerage services; the repeal of the Water Act (Cap. 372) and certain provisions of the Local Government Act; and for related purposes.

Section 94(b) states that no person shall, without authority, throw or convey, or cause or permit to be thrown or conveyed, any rubbish, dirt, refuse, effluent, trade waste, or other offensive or unwholesome matter or thing into or near any water resource in such manner as to cause, or be likely to cause, pollution of the water resource. A person who contravenes this section shall be guilty of an offence.

Table 2. A summary of the laws and some recommendations for enforcing water protection

Law/ agency	Recommendations
NEMA Water Resources Management Authority (WRMA) Ministry of Housing	Enhance institutions' capacity to implement Section 6(c) of the WQR, 2006.
NEMA	· Intensify monitoring for industrial effluent to ensure compliance with Section 15 of WMR.
WRMA	· Intensify monitoring of rivers to ensure compliance with Section 92(1)b of the Water Act.

Solid waste

- Environmental Management and Coordination Act (EMCA 1999)

The Environmental Management and Co-ordination (Waste Management Regulations) 2006 regulate and control industrial waste disposal, hazardous, pesticides and toxic wastes, biomedical wastes, and radioactive substances. Section 4 of these regulations prohibits disposal of any waste on a public highway, street, road, recreational area, or in any public place except in a designated waste receptacle. The same also requires waste segregation and minimization. Section 87(5) of EMCA (1999) observes that every person whose activities generate waste shall employ measures essential to minimise waste through treatment, reclamation, and recycling.

Although the regulations don't provide guidelines for managing e-waste, people have long mistakenly classified it as hazardous or radioactive waste due to the absence of a clear definition. The Act and the WMR also lack clarity on the process for segregating such solid waste.

- The Local Government Act, Cap. 265

Section 201 of the act empowers local authorities to formulate Solid Waste Management (SWM) bylaws, which aid in the regulation and management of all solid waste generated in their jurisdiction. For example, the

city council of Nairobi in 2007 came up with solid waste by-laws. Section 4(7) of the By-laws requires an occupier or owner of any residential dwelling or trade premise to deal with the waste arising from the premises in accordance with the directions issued by the Council either specifically or under the scheme or arrangement established under these By-laws. Section 8 mandates the City Council to arrange for the collection, treatment, and disposal of, or otherwise dealing with, all domestic waste and street and other litter generated.

The SWM By-laws clearly outline the guidelines for source segregation, but field observations reveal either a lack of segregation or inadequate segregation that does not meet the requirements of the By-law. Some of the local authorities in Kenya do not have the by-laws governing solid waste management and hence have no grounds for prosecuting environmental offences. Enforcement of the bylaws by the local authorities has not been adequate, especially in controlling the mushrooming of illegal dumpsites.

The Dandora Dumpsite, Nairobi's main dumpsite, receives unsegregated waste.

Source: Opiyo R, 2008 field survey

Table 3. A summary of the laws and some recommendations for improving SWM

Law/agency	Recommendation
EMCA 1999: WMR	<ul style="list-style-type: none"> • Develop guidelines and standards to guide e-waste management. • Formulate guidelines on source segregation, management, and disposal to eliminate ambiguity in Section 6 of WMR.
Local authorities	<ul style="list-style-type: none"> • Formulate By-laws on SWM • Intensify efforts by the inspection departments to curb illegal dumping.
EMCA 1999	<ul style="list-style-type: none"> • Give guidelines on how to shift from the current open dump site disposal to sanitary landfills as a way to manage solid waste.

CONCLUSION

EMCA is the main environmental protection law in Kenya. It has failed to achieve this objective due to the lack of coherent regulations governing various components of the environment. Different acts of parliament formulate the various operational environmental laws, and the enforcement authorities or agencies operate independently.

We found that many regulations were adequate, but those that weren't lacked objectivity. A major concern was the absence of a Clean Air Act for Kenya; this law has not yet been enacted, and the air quality regulation was based on other regulations whose primary objective is not air quality regulation. We found the Water Act, which protects water resources, and the water quality

regulations enforced by WRMA and NEMA to be adequate, but the implementing agencies' inspection of pre-treatment of industrial effluent and protection of water resources in riparian zones was a weakness. Although the regulations governing SWM are clear, ambiguity on waste segregation and consequent treatment of the segregated waste is a major weakness in the law. The inspection department of the local authorities was identified as the weak point in enforcing the solid waste management by-laws.

Another key aspect that has led to inadequacy in the formulation and implementation of the regulations was the underfunding of the lead agencies. The underfunding of the lead agencies manifested itself in the absence of adequate facilities, equipment, and staffing. A classic example is the lack of vehicle emissions measurement equipment in the Vehicle Inspection Units. This implied that inadequate staff would hinder the full implementation of laws, even if they were adequate, and if the acts of parliament included provisions requiring the formulation of regulations.

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