



## **LEGAL REQUIREMENTS FOR GEOTHERMAL DEVELOPMENT IN KENYA**

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### **ABSTRACT**

The development of geothermal resource requires compliance with relevant National and International laws and regulations to ensure sustainability. There are several Acts of Parliament that work together to regulate and guide geothermal resource use in a sustainable manner. The two laws that specifically deal with geothermal development are Geothermal Resources Act of 1982 and its supplementary legislation of 1990 and the Environmental Management and Co-ordination Act of 1999 with its associated regulations. The other laws and regulations do not directly apply to geothermal but their implications affect geothermal development at various stages and in various ways. A number of these laws and regulations have been discussed briefly herein.

### **1. ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT (EMCA, 1999)**

EMCA is an Act of Parliament that provides for the establishment of an appropriate legal and institutional framework for the management of the environment. Prior to its enactment in 1999, there was no framework environmental legislation. Kenya's approach to environmental legislation and administration was highly sectoral and legislation with environmental management components had been formulated largely in line with natural resource sectors. For example, land, forestry, mineral oils, water etc, this was the legacy of "colonial resource" management legislation. This legislation was primarily concerned with resource allocation and exploitation and therefore had very limited provision for the regulation of the adverse impacts of that process on the environment.

Environmental conservation components were later grafted upon this structure of allocation and exploitation piecemeal, mainly in response to the emergence of critical instances of environmental degradation. The sectoral approach had also diffused power and responsibility in numerous government departments and created jurisdictional overlaps and conflicts and ignored the indivisibility of and the interrelationships within the ecosystem. It, therefore, became very necessary to have a focal point within the government to coordinate activities, policies and to advise the government on environmental management issues. Through administrative instructions, several institutions were created to serve in various areas of environmental management; these include the National Environment Secretariat (NES) established in 1971. The Permanent Presidential Commission on Soil Conservation and Afforestation established in 1981. Both the Secretariat and Commission had no solid foundation having been created by administrative fiats and had no legislative backing.

In the years that followed, Kenya's participation in regional and global conventions gained momentum and Kenya hosted the first major UN agency based in a developing country, namely the United Nations Environmental Programme (UNEP) which was established soon after the Stockholm Conference in 1972. Several agreements and conventions relevant to the management and protection of the environment and natural resources were adopted after the 1972 conference and the evolution of environmental thought reached a stage when it was possible to identify some fundamental principles to govern environmental management. These developments acquired a new face from 1987 when the Brundtland Commission released their celebrated report entitled "Our Common Future" and then climaxed with the Rio conference in 1992.

### **1.1 General principles**

Section 3 of the Act enunciates the General Principles that will guide the implementation of the Act. Every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. It is worth noting that the entitlement to a clean and healthy environment carries a correlative duty. Hence, there is not only the entitlement to a clean and healthy environment, but also the duty to ensure that the environment is not degraded in order to facilitate one's own health as well as other persons' enjoyment of the environment.

These fundamental principles on the environment which include; sustainable development of the environment and natural resources, precautionary measures to mitigate environmental degradation, integration of the environmental considerations into development and planning, promotion of public participation in environmental decision making and enforcement, essentially breathed life into the environmental framework law that we have in Kenya today namely the Environmental Management and Coordination Act No. 8 1999.

EMCA was developed as a framework law, and this is due to the fact that the Act is a single piece of legislation that contains to date a comprehensive system of environmental management in Kenya. The Act provides for the establishment of an appropriate legal and institutional framework for the management of the environment in Kenya and for matters connected therewith and incidental hereto. However, being a framework legislation, its implementation is dependent on the promulgation of enabling regulations that NEMA is currently working on. The Act is still in its nascent stages and, as such, it is still too early to assess its impact on environmental management in Kenya. Until all the enabling regulations have been promulgated and are in force, it would be presumptuous to evaluate its efficacy. The institution of NEMA is still in its formative stage. It still requires critical mass of expertise not only to cover its vast array of functions, but also to build up credibility and blaze the trail in the enforcement of the law for sound environmental management in Kenya. Nevertheless, most Kenyans are aware that there exists a law for the management of our environment and that the days of environmental conservation orders or directives from the President and the chiefs are gone.

The Act is based on the recognition that improved legal and administrative co-ordination of the diverse sectoral initiatives is necessary in order to improve national capacity for the management of the environment, and accepts the fundamental principle that the environment constitutes the foundation of our national, economic, social, cultural and spiritual advancement.

### **1.2 Environmental management and coordination regulations**

In exercise of the powers conferred by sections 92 and 147 of the Environmental Management and Coordination Act, the Minister for Environment and Mineral Resources may, on the recommendation of the National Environment Management Authority in consultation with the relevant lead agencies, make regulations prescribing for matters that are required or permitted by this Act to be prescribed or are necessary or convenient to be prescribed for giving full effect to the provisions of this Act. The Regulations made and gazetted so far include:

- Environmental (Impact Assessment and Audit) Regulations, 2003.
- EMC (Water Quality) Regulations, 2006.
- EMC (Waste Management) Regulations, 2006.
- EMC (Conservation of Biological Resources, Access and Benefit Sharing) Regulations, 2006.
- EMC (Fossil Fuels) Regulations, 2006.
- EMC Controlled Substances (Ozone Depleting Substances) Regulations, 2007.
- EMC (Wetlands, River banks, Lake shores and Sea shore Management) Regulations, 2008.
- Regulations waiting to be gazetted: Air Quality; Noise Pollution; Chemical and Toxic Substances; and Economic Instruments.

### **1.3 Brief highlights of some EMCA regulations**

#### **1.3.1 Environmental Impact Assessment and Audit Regulations (EIA/EA) – Legal notice No. 121 of 2003**

Environmental Impact Assessment (EIA) is a critical examination of the effects of a project on the environment. The goal of an EIA is to ensure that decisions on proposed projects and activities are environmentally sustainable. An EIA is conducted in order to identify impacts of a project on the environment, predict likely changes on the environment as a result of the development, evaluate the impacts of the various alternatives on the project and propose mitigation measures for the significant negative impacts of the project on the environment.

The EIA also generates baseline data for monitoring and evaluating impacts during the project cycle as well as highlighting environmental issues with a view to guiding policy makers, planners, stakeholders and government agencies to make environmentally and economically sustainable decisions. It seeks to minimize adverse impacts on the environment and reduces risks. EIA also identifies measures to mitigate the negative impacts while maximizing on the positive ones.

The EMCA, 1999 requires that during the EIA process a proponent shall in consultation with the Authority seek views of persons who may be affected by the project or activity through posters, newspaper, radio and hold at least three public meetings with the affected parties and communities. The Project proponent pays for the entire EIA process. The fee payable to NEMA is 0.05% of the total project cost, with the minimum being Kshs.10,000 and the maximum being Kshs.1,000,000.

Environmental Audit (EA) is the systematic documentation, periodic and objective evaluation of activities and processes of an ongoing project. The goal of EA is to establish if proponents are complying with environmental requirements and enforcing legislation. The purpose of EA is to determine the extent to which the activities and programs conform to the approved environmental management plan. A comprehensive EA ensures a safe and healthy environment at all stages of project operations and decommissioning.

An initial environmental audit and a control audit are conducted by a qualified and authorized environmental auditor or environmental inspector who is an expert or a firm of experts registered by the Authority. In the case of an ongoing project the Authority requires the proponent to undertake an initial environmental audit study to provide baseline information upon which subsequent environmental audits shall be based.

Self Audits are carried out after the environmental impact assessment study report has been approved by the Authority or after the initial audit of an ongoing project. The proponent shall take all practical measure to ensure the implementation of the environmental management plan by carrying out a self auditing study on a regular basis.

### **1.3.2 Water quality regulations, 2006 (Legal notice No. 120)**

Water Quality Regulations apply to water used for domestic, industrial, agricultural, and recreational purposes; water used for fisheries and wildlife purposes, and water used for any other purposes. Different standards apply to different modes of usage. These regulations provide for the protection of lakes, rivers, streams, springs, wells and other water sources.

The objective of the regulations is to protect human health and the environment. The effective enforcement of the water quality regulations will lead to a marked reduction of water-borne diseases and hence a reduction in the health budget.

The regulations also provide guidelines and standards for the discharge of poisons, toxins, noxious, radioactive waste or other pollutants into the aquatic environment in line with the Third Schedule of the regulations. The regulations have standards for discharge of effluent into the sewer and aquatic environment. While it is the responsibility of the sewerage service providers to regulate discharges into sewer lines based on the given specifications, NEMA regulates discharge of all effluent into the aquatic environment.

The regulations provide for the creation of a buffer zone for irrigation schemes of at least fifty (50) metres in width between the irrigation scheme and the natural water body. Standards for irrigation water are given in schedule nine of the regulations.

All firms or persons discharging effluent into the aquatic environment are required to submit quarterly discharge monitoring records to NEMA based on prescribed procedures of sampling and analysis.

Everyone is required to refrain from any actions, which directly or indirectly cause water pollution, whether or not the water resource was polluted before the enactment of the Environmental Management and Coordination Act (EMCA) gazetted in 1999. It is an offence to contravene the provisions of these regulations with a fine not exceeding five hundred thousand shillings.

### **1.3.3 Waste management regulations, 2006 (Legal notice No. 121)**

Waste Management Regulations are meant to streamline the handling, transportation and disposal of various types of waste. The aim of the Waste Management Regulations is to protect human health and the environment. Currently, different types of waste are dumped haphazardly posing serious environmental and health concerns. The regulations place emphasis on waste minimization, cleaner production and segregation of waste at source.

The regulations have classified various types of waste and recommended appropriate disposal methods for each waste type. Under the Waste Management Regulations, NEMA licenses transporters, incinerators, landfills, composers, recyclers and transfer stations. Facilities to be licensed include local authorities, transporters and handlers of various types of waste. The licensing employs a risk-based approach by concentrating on facilities considered to pose a high risk to the environment.

The Waste Management Regulations also provide an opportunity for investment in various aspects of waste management.

## **1.4 Environmental management**

Environmental management includes the protection, conservation and sustainable use of the various elements or components of the environment.

It is an integral component of geothermal resource development due to its resultant impacts on the environment. Consequently, utilisation of geothermal energy and its composite activities fall within

the categories that are stipulated in the Second Schedule of EMCA, 1999 for projects that must undertake Environmental Impact Assessment prior to commencement. The categories are:

*General:*

- An activity out of character with its surrounding;
- Any structure of a scale not in keeping with its surrounding;
- Major changes in land use.

*Dams, rivers and water resources including:*

- Storage dams, barrages and piers;
- River diversions and water transfer between catchments;
- Flood control schemes;
- Drilling for the purpose of utilising ground water resources including geothermal energy.

*Electrical infrastructure including:*

- Electricity generation stations;
- Electrical transmission lines;
- Electrical sub-stations;
- Pumped-storage schemes.

*Waste disposal including sites for solid waste disposal:*

- Sites for hazardous waste disposal;
- Sewage disposal works;
- Works involving major atmospheric emissions;
- Works emitting offensive odours.

## **1.5 Environmental management tools**

Currently, various tools are in use for the purpose of managing the impacts that have the potential of degrading the environment. They are mainly applied in identification, planning, design, negotiation, and implementation of strategies and operations. They include:

*Environmental Impact Assessment (EIA)* - EIA means a systematic examination conducted to determine whether or not a programme, activity or project will have any adverse impacts on the environment.

*Environmental Audit (EA)* - EA means the systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing in conserving or preserving the environment.

*Strategic Environmental Assessment (SEA)* - SEA is the systematic, proactive process for evaluating the environmental consequences of policies', plans' and programs' (PPPs') proposals in order to ensure that their environmental consequences are fully included and adequately addressed at the earliest appropriate stage of decision-making, at par with economic and social considerations.

*Environmental Risk Assessment (EnRA)* - EnRA means a systematic examination conducted to determine whether or not a program, activity or project will pose any risks to the environment.

*Social Impact Assessment (SIA)* - SIA means a systematic examination conducted to analyse how development proposals affect people, identify and mitigate their adverse impacts, enhance benefits as well as help manage social change.

## **2. OTHER REGULATIONS**

### **2.1 The Geothermal Resources Act, 1982**

This focuses on the drilling and licensing of geothermal well. The Second Schedule of the Geothermal Resources regulations, 1990, highlights the need for sustainable disposal of waste products from the geothermal processes.

### **2.2. The Lakes and Rivers Act (Cap. 409)**

This Act makes provision for the protection of bird and other wildlife in or on lakes and rivers, and protection of waterways in general.

### **2.3. The Electric Act, 1997**

The Act consolidates laws relating to the generation, transmission, transformation, distribution, supply and use of electrical energy for lighting and other purposes, and for the connected purposes. It also highlights the need for power users to conserve natural resources.

### **2.4. The Water Act, 2002**

Part II, section 18 of the Water Act, 2002 provides for national monitoring and information systems on water resources. Following on this, sub-section 3 allows the Water Resources Management Authority to demand from any person or institution, specified information, documents, samples or materials on water resources. Under these rules, specific records may require to be kept by a facility operator and the information thereof furnished to the authority.

Section 73 of the Act allows the licensee to supply water and make regulations for purposes of protecting against degradation of water sources. Section 75 and subsection 1 allows the licensee to construct and maintain drains sewers and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing pollution of water sources within his/her jurisdiction.

### **2.5. The Public Health Act (Cap. 242)**

Part IX, Section 115 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to be injurious or dangerous to human health.

Any noxious matter or waste water flowing or discharged from any premises into a public street or into the gutter or side channel or watercourse, irrigation channel or bed not approved for discharge is also deemed as a nuisance. Other nuisances are accumulation of materials or refuse which in the opinion of the medical office of health is likely to harbour rats or other vermin.

### **2.6. The Physical Planning Act, 1999**

The Local Authorities are empowered under Section 29 of the Act to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. The same section allows for the

prohibition or control of the use and development of land and buildings in the interest of proper and orderly development of an area.

Section 30 states that any person who carries out development without development permission will be required to restore the land to its original condition. It also states that no other licensing authority shall grant license for commercial or industrial use or occupation of any building without a development permission granted by the respective local authority.

### **2.7. The Land Planning Act (Cap. 303)**

Section 9 of the subsidiary legislation (The Development and Use of Land Regulations, 1961) under this Act, requires that before the local authorities submit any plans to the Minister for approval, steps should be taken as may be necessary to acquaint the owners of any land affected by such plans. Particulars of the comments and objections made by the landowners should also be submitted. This is intended to reduce conflict with other interests such as settlement and other social and economic activities.

### **2.8. The Penal Code (Cap. 63)**

Section 191 of the Penal Code states that any person or institution that voluntarily corrupts or foils water for public springs or reservoirs, rendering it less fit for its ordinary use is guilty of an offence. Section 192 says that a person who makes or vitiates the atmosphere in any place to make it noxious to health of persons/institution in dwellings or business premises in the neighborhood or those passing along public way commits an offence.

### **2.9. The Wildlife Conservation & Management Act (Cap. 376)**

This Act consolidates and amends laws relating to the protection, conservation and management of wildlife in Kenya. The main objective is to ensure that wildlife are managed and conserved in a manner that yields optimum returns in terms of scientific, cultural, aesthetic and economic gains, while at the same time taking into account the varied forms of land use and the inter-relationship between wildlife and other land uses.

### **2.10 The Forests Act, 2005**

The Forests Act, 2005 allows for the sustainable development of a forest in collaboration with institutions. Part II (Administration) of the Act, Sec. 4 (f) states that the Kenya Forest Service shall collaborate with individuals and private and public research institutions in identifying research needs and applying research findings.

## **3. INTERNATIONAL LEGISLATIONS/CONVENTIONS**

Besides the national legislations, there are international guidelines that govern the development of geothermal resources, especially those linked to funding geothermal projects like the World Bank operational directive OP 4.00. Geothermal projects fall within World Bank Category A for Projects that require environmental impact assessment studies.

Kenya is also a signatory to several international treaties and conventions. Those that could have implications on the geothermal development include among others:

- The United Nations Framework Convention on Climate Change (UNFCCC), which has established an ultimate objective of stabilizing GHG emissions at a level that would prevent anthropogenic interference with global climate. In order to achieve the convention's

objectives, the Kyoto Protocol was drawn in 1997, where the developed nations agreed to limit their GHG emissions to levels emitted in 1990.

- The 1994 Convention for Biological Diversity, whose objective is conservation of biological diversity, the sustainable use of its components and fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The convention is relevant as the lands on which geothermal projects are located are habitats with a diversity of flora, fauna and avifauna.
- The Ramsar Convention on Wetlands of International Importance especially the Waterfowl Habitat is concerned with the conservation and management of wetlands and their resources. Geothermal projects are located in the Rift Valley where various Ramsar Sites exist such as Lakes Naivasha, Nakuru, Bogoria, Baringo, and Elementaita.

#### 4. SUMMARY

The legal requirements in geothermal development are summarized in Table 1 below.

TABLE 1: Summary of legal requirements in geothermal development

Legal and Other Requirements	Obligations on KenGen's Business Activities
EMCA, 1999	EIA for new projects. Annual audits for existing
OSHA, 2007	Safe working environment. Statutory inspection & audits
Water Act, 2002	Permits extraction of water
Public Health Act cap 242	Ensures sanitation in public places
Fisheries Act cap 378	Water discharge licences
Pollution Control & Abatement (World Bank)	Adoption of CDM and effluent discharge within WHO standards
Geothermal Resources Act (1982)	Licences for geothermal resources exploration
Geothermal Resources Regulations (1990)	Refer to geothermal act
Public Health Act (1986 revision)	Ensures sanitation in public places
Wildlife (Conservation and Management) Act (1985 revision)	Conservation of wildlife resources
KenGen/KWS MoU for geothermal developments, 1994	Ensures conservation of the environment in the park
Lakes and Rivers Act (1983 revision)	Conservation of catchment areas and licensing of activities around the lake.
Building Code (1997)	Structures are within required structural standards.
Local Government Act (1998 revision)	Unionisable staff
Trade Licensing Act	Follow documented procedures
Physical Planning Act (1996)	Development is compliant to zoning specifications of the area
Land Planning Act CAP 303	Operations within zoned areas
Land Control Act CAP 406	Stakeholder consultations with the locals and the Government
Penal Code (1985 revision)	Heavy fines to non compliance
Radiation Protection Act (1985)	Staff are not exposed to radiation prone areas for more than 8 hours
Food, Drugs and Chemical Substances Act (1992 revision)	Compliant to local and international threshold limits
Scrap Metal Act (revision 1972)	Any metal waste is sold as scrap
Use of Poisonous Substances Act	Observe threshold limits
Workmen's Compensation Act (1988 revision)	Refer to OSHA 2007
Agriculture Act (CAP 372)	Sustainable development
Forest Act, 2005	Consultation with Government is made in case of research and development within a public forest
Energy Act, 2005	Energy audits