



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

**Elizabeth Mwangi-Gachau**  
Kenya Electricity Generating Company Ltd.  
Olkaria Geothermal Project  
P.O. Box 785-20117, Naivasha  
KENYA  
*ewmwangi7@gmail.com*

### **ABSTRACT**

The development of geothermal resource requires compliance with the relevant National and International laws and regulations to ensure sustainability. The Constitution of Kenya and several Acts of Parliament together regulate and manage sustainable utilisation of geothermal resources. The two main 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 in this paper.

### **1. THE CONSTITUTION OF KENYA**

The Constitution is the supreme law of the Republic of Kenya that binds all persons and all State organs at both National and County levels of government. Specifically, Chapter Five (5) of the Constitution of Kenya on Land and Environment, stipulates the principles of sustainable utilisation, exploitation, management and conservation of land, the environment and natural resources, as well as equitable sharing of the accruing benefits, for the benefit of the people of Kenya. This therefore is directly applicable to exploitation of geothermal resources that are resident on the Kenyan land.

### **2. THE GEOTHERMAL RESOURCES ACT, 1982**

The Act in conjunction with the Geothermal Resources Regulations, 1990 regulates the issuance of Geothermal Resources' Licences for the purpose of exploration, drilling, extraction, utilisation and disposal of geothermal steam and associated geothermal resources in or under the licensed area. The responsibility of declaring any area a geothermal resources area and issuing the authority or license to search for geothermal resources or to drill and extract and utilise geothermal resources lies with the Minister for Energy.

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

EMCA, 1999 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 fiat 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.

#### **3.1 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, since it is a framework legislation, its implementation is dependent on the promulgation of

enabling regulations that NEMA is continuously 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.

### **3.2 Environmental management and co-ordination regulations**

IN EXERCISE of the powers conferred by sections 92 and 147 of the Environmental Management and Co-ordination 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 but not limited to:

- 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, Lakeshores and Riverbanks) Regulations, 2008; and
- EMC (Noise and Excessive Vibrations) Regulations, 2009.

### **3.3 Brief highlights of some EMCA, 1999 regulations**

#### **The Environmental (Impact Assessment and Audit) Regulations, 2003 - Legal Notice No. 101**

- 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 project cost.

- 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.

#### **Environmental Management and Co-ordination (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.

#### **Environmental Management and Co-ordination (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.

### **3.4 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:

1. General –
  - (a) An activity out of character with its surrounding;
  - (b) Any structure of a scale not in keeping with its surrounding; and
  - (c) Major changes in land use.
2. Dams, rivers and water resources including –
  - (a) Storage dams, barrages and piers;
  - (b) River diversions and water transfer between catchments;
  - (c) Flood control schemes; and
  - (d) Drilling for the purpose of utilising ground water resources including geothermal energy.
3. Electrical infrastructure including –
  - (a) Electricity generation stations;
  - (b) Electrical transmission lines;
  - (c) Electrical sub-stations; and
  - (d) Pumped-storage schemes.
4. Waste disposal including sites for solid waste disposal
  - (a) Sites for hazardous waste disposal;
  - (b) Sewage disposal works;
  - (c) Works involving major atmospheric emissions; and
  - (d) Works emitting offensive odours.

### **3.5 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:

#### **3.5.1 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.

#### **3.5.2 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.

### **3.5.3 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.

### **3.5.4 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.

### **3.5.5 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.

## **4. 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.

## **5. THE ENERGY ACT, 2006**

An Act of Parliament to amend and consolidate the law relating to energy, to provide for the establishment, powers and functions of the Energy Regulatory Commission and the Rural Electrification Authority, and for connected purposes.

The provisions of this Act applies, to every person or body of persons importing, exporting, generating, transmitting, distributing, supplying or using electrical energy; importing, exporting, transporting, refining, storing and selling petroleum or petroleum products; producing, transporting, distributing and supplying of any other form of energy, and to all works or apparatus for any or all of these purposes. The Act emphasizes need for renewable energy, energy efficiency and conservation

## **6. THE WATER ACT, 2002**

The Water Act 2002 is the main legislation that regulates the water sector in Kenya. It created the Water Resources Management Authority (WRMA) whose role is to regulate and manage water resources in Kenya. The Act ensures availability of water through regulating the amount of water that can be supplied in bulk by a licensee or a water service provider so that water supply to domestic water consumers is not affected. It provides that water service providers have a legal duty of providing water services to the people and also ensuring that associated works and facilities are provided, maintained and progressively improved.

The Act prioritises the allocation of water resources for essential domestic uses over other uses such as industrial use e.g. geothermal resource development. Geothermal development activities require substantial quantities of water for construction, drilling and power plant cooling operations and for domestic use by the respective working staff. Further, the Act entrenches public participation and involvement in water services' and water resources' management.

## **7. 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 officer of health is likely to harbor rats or other vermin.

## **8. THE PHYSICAL PLANNING ACT, 1999**

The Local Authorities are empowered under Section 29 of the Act to prohibit or control 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. Subject to subsection (7) no licensing authority shall grant, under any written law, a licence for commercial or industrial use or occupation of any building, or in respect of any premises or land, for which no development permission had been granted by the respective local authority. Industrial use includes manufacturing, processing distilling and brewing, warehousing and storage, workshops and garages, mining and quarrying and other similar industrial activities including petroleum filling stations.

## **9. 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.

## **10. 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 neighbourhood or those passing along public way commits an offence.

## **11. 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. The Kenya Wildlife Service (KWS) is a Kenyan state corporation that was

established under the Act with the mandate to conserve and manage wildlife in Kenya, and to enforce related laws and regulations. This Act is particularly applicable to Olkaria Geothermal Project since it is situated within the Hell's Gate National Park.

## **12. THE FORESTS ACT, 2005**

An Act of Parliament that provides for the establishment, development and sustainable management, including conservation and rational utilisation of forest resources for the socio-economic development of the country. The Act created the Kenya Forest Service whose roles among others is to manage all State forests; manage all provisional forests in consultation with the forest owners; and protect forests in Kenya in accordance with the provisions of this Act. Any activities within a forest area which are not included in a management plan shall only be undertaken with the consent of the Board granted in accordance with this section. A person intending to undertake any activity not included in a management plan within a forest area shall apply in that behalf to the Board, and the application shall be accompanied by the results of an independent Environmental Impact Assessment conducted in respect of the proposed activity. Geothermal resources are currently being developed in Eburru and Menengai Forest Reserves.

## **13. THE PUBLIC PROCUREMENT AND DISPOSAL ACT, 2005**

An Act of Parliament to establish procedures for efficient public procurement and for the disposal of unserviceable, obsolete or surplus stores, assets and equipment by public entities and to provide for other related matters. The Act provides for the establishment of the Public Procurement Oversight Authority to ensure compliance with the procurement procedures. The Public Procurement and Disposal Regulations are meant for better implementation of the provisions of the Act. The objectives of the Act are:

- (a) to maximise economy and efficiency;
- (b) to promote competition and ensure that competitors are treated fairly;
- (c) to promote the integrity and fairness of those procedures;
- (d) to increase transparency and accountability in those procedures; and
- (e) to increase public confidence in those procedures.
- (f) to facilitate the promotion of local industry and economic development.

The Act is applicable with respect to:

- (a) procurement by a public entity;
- (b) contract management;
- (c) supply chain management, including inventory and distribution; and
- (d) disposal by a public entity of stores and equipment that are unserviceable, obsolete or surplus.

## **14. OCCUPATIONAL SAFETY AND HEALTH ACT, 2007**

It is an Act of Parliament that provides for the safety, health and welfare of workers and all persons lawfully present at workplaces and for the establishment of the National Council for Occupational Safety and Health. The Act applies to all workplaces where any person is at work, whether temporarily or permanently. The purpose of the Act is to secure the safety, health and welfare of persons at work; and protect persons other than persons at work against risks to safety and health arising out of, or in connection with, the activities of persons at work.

Geothermal development activities are labour intensive, hence the need to guarantee the safety of the workers and all persons lawfully present at workplaces.



### **14.1 International legislations**

Besides the national legislations, there are international guidelines that govern the development of geothermal resources especially those that touch on the environment and natural resources. They are listed below:

#### **14.1.1 Vienna Convention for the Protection of the Ozone Layer, 1985**

An international treaty for the control of substances that deplete the ozone layer.

#### **14.1.2 The United Nations Framework Convention on Climate Change (UNFCCC), 1992**

An international treaty to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climatic system.

#### **14.1.3 The Ramsar Convention on Wetlands, 1971**

An intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The wetlands include lakes and rivers, swamps and marshes, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans. Geothermal projects are located within the Rift Valley that has five (5) Ramsar sites e.g. Lakes Baringo, Bogoria, Elementaita, Naivasha and Nakuru.

#### **14.1.4 Bonn Convention on the Conservation of Migratory Species of Wild Animals, 1979**

An intergovernmental treaty concerned with the conservation of migratory species of wildlife and their habitats on a global scale.

#### **14.1.5 African Convention on the Conservation of Nature and Natural Resources, 1968**

Convention for the conservation, utilization and development of soil, water, flora and faunal resources in accordance with scientific principles and with due regard to the best interests of the people.

## **15. CONCLUSION**

Compliance with the stated and other requisite legal requirements is inevitable and of paramount importance, for sustainable development of geothermal resources.