



MARCH 11, 2024

**PRINCIPLES OF INDUSTRIAL
MANAGEMENT
GROUP A-8**

GROUP MEMBERS:

DAVID NZAMBULI: SCT 211-0068/2022

IAN NDOLO: SCT 211-0034/2022

NEEMA OGAO: SCT 211-0086/2022

MAUREEN NYAGA: SCT 211-0052/2022

PHARIS KARIUKI: SCT 211-0033/2022



TABLE OF CONTENTS

TABLE OF CONTENTS.....	1
INTRODUCTION	2
Why should we conduct an Environmental Impact Assessment?	2
PROJECTS THAT REQUIRE ENVIRONMENTAL IMPACT ASSESSMENT AND THE REASONS BEHIND THEM....	4
ENVIRONMENTAL IMPACT ASSESSMENT AS A LEGAL REQUIREMENT	9
Public Participation in EIA	10
EIA PROCESS:- WHAT STEPS ARE INVOLVED IN EIA?	11
The key elements in the EIA process.	11
Fees Relating To EIA	11
NEMA’S BAN ON PLASTIC BAGS.....	12
Reasons for the Ban	12
Objectives of the Ban	12
Success And Challenges Of The Ban.....	12
Effects of NEMA’s ban on plastic bags on industry location.....	13

INTRODUCTION

As industries continue to expand globally over the years, achieving a delicate equilibrium between economic prosperity and environmental sustainability stands as an increasingly pressing imperative. Environmental Assessment therefore, emerges as a pivotal process, offering profound insights into the environmental implications of industrial activities and guiding the selection of suitable locations for industrial ventures and their management. An Environmental Impact Assessment(EIA) is therefore, considered to be one of the most crucial tools for environment management, tasked to ensure that the decisions made on proposed projects uphold principles of environmental sustainability.

In Kenya, National Environmental Management Authority (NEMA) plays a pivotal role in safeguarding the environment, promoting sustainable industrial practices, and ensuring the welfare of communities impacted by industrial activities. It conducts EIAs for various projects and by ensuring environmentally sustainable decisions, contributes to the responsible industrial management and overall well-being of people.

Why should we conduct an Environmental Impact Assessment?

- EIA assesses the potential impacts of establishing an industry in a specific location. It evaluates factors such as land use, proximity to sensitive ecosystems, and community well-being. Therefore, prior to the construction of a new mining plant, NEMA may require the company to conduct an EIA to evaluate its effects on air and water quality, biodiversity, and local communities.
- An EIA identifies both the adverse and beneficial impacts of any development activity or project, how it affects people, their property and the environment. For example, through EIA, we can assess the factors associated with a large open-pit mining operation extracting minerals. It may have negative impacts on the environment due to habitat destruction but could at the same time, create job opportunities for the locals and contribute to the economy.
- An EIA also proposes mitigation strategies that have been developed to mitigate the negative impacts of development and maximize the positive ones through the major purpose of primarily assisting in the integration of environmental concerns in economic development to foster sustainable development. For example, in the aforementioned scenario, some of the mitigation strategies that could be implemented to counter the negative impacts such as dust generated during mining activities that can harm both the environment and human health include lowering the height from which materials are discharged minimizing dust dispersion.
- It highlights environmental issues with the aim of guiding policymakers, planners, stakeholders and government agencies to make both environmentally and economically sustainable decisions. For example, NEMA may organize community meetings to discuss proposed industrial projects and address concerns raised by local residents.

- An EIA compares different project alternatives to determine each's environmental consequences. This helps decision-makers choose the most sustainable option. For example: For example, EIA might compare the environmental consequences of an open-pit mine with an underground mine and choose to go with the latter since they may have fewer surface disturbances.
- It generates baseline data for monitoring and evaluating impacts, including mitigation measures during the project cycle. For instance, in the case of the mining plant, EIA may establish baseline environmental data prior to the commencement of mining operations. This data will serve as a reference for monitoring various changes during and after the project. The baseline data can be obtained through collecting data on soil quality, water sources, and wildlife populations.

PROJECTS THAT REQUIRE ENVIRONMENTAL IMPACT ASSESSMENT AND THE REASONS BEHIND THEM

In general, EIAs are required for projects that have the potential to:

- Cause significant changes to land use or habitat.
- Pollute air, water, or soil.
- Disrupt or endanger wildlife populations.
- Affect communities or cultural heritage sites.

And with that 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
- Propose mitigation measures for the significant negative impacts of the project on the environment.
- Generate baseline data for monitoring and evaluating impacts, including mitigation measures during the project cycle.
- Highlight environment issues with a view to guiding policy makers, planners, stakeholders and government agencies to make environmentally and economically sustainable decisions.

The following is a breakdown of some common examples of projects that require EIA and the reasons behind them:

Heavy Industry:

- Mines and Quarries: Large-scale extraction activities can significantly alter landscapes, disrupt wildlife habitats, and pollute air and water. EIAs assess these impacts and propose mitigation measures.
- Oil and Gas Facilities: These projects can lead to spills, habitat destruction, and air pollution. EIAs evaluate these risks and propose ways to minimize them.
- Manufacturing Plants: Factories can generate air and water pollution, as well as hazardous waste. EIAs assess these risks and ensure proper waste disposal methods.

Infrastructure Development:

- Transportation Projects: Building new roads, railways, and airports can fragment habitats, increase noise pollution, and affect water flow. EIAs consider these impacts and propose solutions like wildlife corridors and noise barriers.
- Dams and Reservoirs: These projects can disrupt river ecosystems, displace communities, and alter downstream water flow. EIAs assess these impacts and propose measures to minimize harm.

- Urban Development: Urbanization often involves land clearance, increased pollution, and disruption of natural drainage systems, leading to habitat loss, air and water pollution, and increased flood risk, affecting both the environment and human well-being.

Other Industries:

- Large-Scale Agriculture: Monoculture farming practices and heavy pesticide use can harm soil health and biodiversity. EIAs can assess these risks and promote sustainable practices.
- Waste Disposal Facilities: Landfills and incinerators can pollute air, water, and soil. EIAs ensure proper siting and operation to minimize environmental damage.
- Tourism and Recreation (Resorts, Theme Parks): Tourism developments can lead to habitat destruction, increased waste generation, and strain on local resources such as water and energy, impacting ecosystems and cultural heritage sites.

WHICH PROJECTS REQUIRE EIA?

The National Environment Management Authority of Kenya (NEMA) which oversees environmental activities and implements environmental policies in all sectors within the country, follow

the Second Schedule of EMCA 1999 that specifies the projects to be subjected to EIA, and include:

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.

Urban Development including:-

- Designation of new townships;
- Establishment of industrial estates;
- Establishment or expansion of recreational areas;
- Establishment or expansion of recreational townships in mountain areas, national parks and game reserves;
- Shopping centers and complexes.

Transportation including: –

- All major roads;
- All roads in scenic, wooded or mountainous areas and wetlands;
- Railway lines;
- Airports and airfields;
- Oil and gas pipelines;
- Water transport.

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 utilizing ground water resources including geothermal energy.

Aerial spraying.

Mining, including quarrying and open-cast extraction of:-

- Precious metals;
- Gemstones;
- Metalliferous ores;
- Coal;
- Phosphates;
- Limestone and dolomite;
- Stone and slate;
- Aggregates, sand and gravel;
- Clay;
- Exploitation for the production of petroleum in any form;
- Extracting alluvial gold with use of mercury.

Forestry related activities including:-

- Timber harvesting;
- Clearance of forest areas;
- Reforestation and afforestation.

Agriculture including:-

- Large-scale agriculture;
- Use of pesticide;
- Introduction of new crops and animals;
- Use of fertilizers;
- Irrigation.

Processing and manufacturing industries including:-

- Mineral processing, reduction of ores and minerals;
- Smelting and refining of ores and minerals;
- Foundries;
- Brick and earth ware manufacture;
- Lime processing;

- Glass works;
- Fertilizer manufacture or processing;
- Explosive plants;
- Oil refineries and Petro-chemical works;
- Tanning and dressing of hides and skins;
- Abattoirs and meat-processing plants;
- Chemical works and process plants;
- Brewing and malting;
- Bulk grain processing plants;
- Fish-processing plants;
- Pulp and paper mills;
- Food-processing plants
- Plants for the manufacture or assembly of motor vehicles;
- Plants for the construction or repair of aircraft or railway equipment;
- Plants for the manufacture of tanks, reservoirs and sheet-metal containers;
- Plants for the manufacture of coal briquettes;
- Plant for manufacturing batteries;

Electrical infrastructure including:-

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

Management of hydrocarbons including:-

the storage of natural gas and combustible or explosive fuels.

Waste disposal including:-

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

Natural conservation areas including:-

- Creation of national parks, game reserves and buffer zones;
- Establishment of wilderness areas;
- Formulation or modification of forest management policies;
- Formulation or modification of water catchment management policies;
- Policies for the management of ecosystems, especially by use of fire;
- Commercial exploitation of natural fauna and flora;
- Introduction of alien species of fauna and flora into ecosystems.

Nuclear Reactors.

Major developments in biotechnology including the introduction and testing of genetically modified organisms.

ENVIRONMENTAL IMPACT ASSESSMENT AS A LEGAL REQUIREMENT

Environmental Impact Assessment (EIA) is often a legal requirement in many jurisdictions around the world for proposed projects that could have significant impacts on the environment. The administration of Environmental Impact Assessment (EIA) as a legal requirement involves several key components:

- **Legislation and Regulation:** Laws and regulations imposed by governments enforce the need for environmental impact assessments. These rules specify the kinds of projects that need to be evaluated, how such evaluations are carried out, and what the roles of stakeholders, regulatory bodies, and project sponsors are.
- **Designation of Competent Authorities:** Regulatory agencies or competent authorities are chosen by governments to oversee the EIA process. These authorities supervise the development of EIA reports, evaluate project proposals, and render judgments in light of the assessment's conclusions.
- **Project Screening:** A project's size, type, location, and potential environmental implications are taken into consideration when evaluating whether it is necessary to conduct an environmental impact assessment (EIA). This is one of the first steps in the EIA process. The appropriate authorities usually conduct this screening.
- **Scoping:** Scoping entails determining the principal environmental concerns and possible effects that the EIA must address. The scope of the assessment, including the parameters to be examined and the procedures to be applied, is defined by the responsible body after consulting with pertinent parties.
- **Baseline Data Collection:** In order to determine the current environmental conditions in the project region, an EIA must gather baseline data. This information is used to monitor changes over time and evaluate possible effects. The requirements for baseline investigations and data collecting may be specified by the appropriate authority.
- **Impact Assessment:** Predicting and assessing the project's possible effects on the environment, society, and economy is a key component of the environmental impact assessment (EIA) process. This evaluation takes into account potential mitigating strategies, cumulative consequences, and direct and indirect implications. The appropriate authorities may offer recommendations regarding the evaluation criteria and assessment procedures.
- **Public Consultation and engagement:** In many cases, the EIA process requires public engagement. Opportunities for public engagement are facilitated by the competent authority so that stakeholders, interested parties, and impacted communities can voice concerns, offer suggestions, and add local expertise to the assessment.
- **Decision-Making:** The competent authority decides whether to approve, disapprove, or request changes to the proposed project based on the information provided in the EIA report and public consultation. Usually, an evaluation of the project's possible consequences and

the efficiency of suggested mitigation strategies in reducing unfavorable effects serve as the basis for this decision.

- **Monitoring and Compliance:** The competent authority is in charge of monitoring and compliance following project approval to make sure the project complies with the requirements outlined in the EIA approval. This could include site inspections, consistent reporting by the project sponsor, and enforcement measures in the event of non-compliance.
- **Review and Continuous Improvement:** Periodic review and evaluation of the EIA process are essential to identify areas for improvement and ensure that it remains effective in protecting the environment and promoting sustainable development. The competent authority may conduct reviews of EIA guidelines, regulations, and procedures to incorporate lessons learned and emerging best practices.

Public Participation in EIA

Public participation in the EIA process enhances transparency, accountability, and the quality of decision-making. public participation in EIA enhances the democratic legitimacy of decision-making, fosters social acceptance of projects, and improves the overall quality of environmental governance.

It typically involves several components:

- **Public Review of EIA Reports:** Public review and comment on EIA reports are frequently made available. This enables interested parties and organizations to carefully review the assessment results, spot any errors or gaps, and offer more details.
- **Stakeholder Engagement:** Involving stakeholders in the assessment process, such as community organizations, non-governmental organizations, indigenous peoples, and local government agencies, guarantees that a variety of viewpoints and issues are taken into account.
- **Access to Information:** Governments and project supporters must make information on the project, including its possible effects, mitigating strategies, and decision-making procedures, easily available.
- **Building public capacity** to enable meaningful involvement in the EIA process involves dispensing information and resources to the general public. This could be seminars, training sessions, or instructional materials to assist stakeholders in comprehending the technical facets of the evaluation.

EIA PROCESS:- WHAT STEPS ARE INVOLVED IN EIA?

The key elements in the EIA process.

1) Development and submission of a Project Report for projects or activities which are not likely to have significant environmental impacts or those for which no EIA study is required. However, if the Authority considers that an EIA study is required, then the ensuing EIA process is as follows:

- Scoping and drawing-up of Terms of Reference (TOR) for the study for approval by the Authority.
- Gathering of baseline information through investigation/ research and subsequent submission of EIA Study Report to the Authority.
- Review of EIA Study Report by the Authority and relevant lead agencies.

2) Decision on EIA Study Report includes approval, approval with conditions or rejection.

3) Appeals.

4) Implementation of project.

5) Monitoring the project.

6) Auditing the project.

Upon completion of the project, what next?

Thereafter, an Annual Environmental Audit (EA) Study Report will be done on the project. It is Your Responsibility to Implement Environmental Impact Assessment (EIA)

Notwithstanding any license, permit or approval granted under any written law, any person who commences, proceeds with, executes or conducts any project without approval granted under the Act (EMCA) or regulations issued under the Act commits an offence and on conviction is liable to the penalty prescribed under the Act.

Fees Relating To EIA

1) Lead Experts: Registration - Ksh 3000 and annual practicing license Ksh 5000(Ksh 9000 and Ksh 15000 for non-citizens respectively).

2) Associate Experts: Registration - Ksh 2000 and annual practicing license Ksh 3000(Ksh 6000 and Ksh 9000 for non-citizens respectively).

3) Firm of Experts: Registration - Ksh 5000 and annual practicing license Ksh 20000

4) EIA License: 0.05% of the total cost of the project. (now reviewed to 0.1% of the total cost of the project to a minimum of KSh.10,000 with no upper capping. GAZETTE NOTICE NO. 13211

5) EIA License Surrender, Transfer or Variation: Ksh 5000.

NEMA'S BAN ON PLASTIC BAGS

The National Environment Management Authority (NEMA) has taken significant steps to address the environmental impact of plastic bags.

Ban Implementation

The ban on plastic bags was officially enforced by NEMA following a six-week grace period, with a gazetted notification on 27th February 2017.

Scope

The ban covers the manufacture, sale, distribution, and usage of plastic bags in Kenya.

In 2020, single-use plastics were also prohibited in protected areas like parks and forests.

Enforcement

NEMA has been actively monitoring compliance and taking measures to enforce the ban.

It also imposes a fine of 40000 or a jail term of 4 years for those found using the bags.

Reasons for the Ban

- Environmental Impact - Plastic bags pose a significant threat to the environment due to their non-biodegradability. They contribute to litter, clog drainage systems, harm wildlife, and contaminate soil and water.
- Visual Pollution - The unsightly presence of plastic bags mars Kenya's natural beauty, affecting tourism and overall aesthetics.
- Health Risks - Improper disposal of plastic bags can lead to health hazards, especially when they accumulate in water bodies and urban areas.

Objectives of the Ban

- Environmental Conservation - The primary goal is to protect the environment by reducing plastic pollution.
- Promote Alternatives - By banning plastic bags, NEMA aims to encourage the adoption of eco-friendly alternatives such as reusable bags and non-woven polypropylene bags.
- Raise Awareness - The ban serves as a wake-up call for citizens, businesses, and policymakers to recognize the urgency of addressing plastic waste.

Success And Challenges Of The Ban

Compliance: Approximately 80% of the public has complied with the ban, demonstrating its effectiveness.

Challenges: Despite the ban, some plastic bags still find their way into circulation. NEMA continues to address these challenges through awareness campaigns and enforcement efforts.

Effects of NEMA's ban on plastic bags on industry location

Raw materials

Industries that were initially located close to the non-biodegradable plastic used to manufacture plastic bags had to relocate to areas where they could find biodegradable plastic as a result of the ban

Consumer Preferences and Demand

The ban on plastic bags caused a change in consumer preferences towards environmentally friendly products and packaging. Industries sensitive to consumer demands had to relocate their operations to align with these preferences and maintain competitiveness in the market.

Innovation and investment opportunities

Industries that specialized in manufacturing bags that complied with NEMA's regulation were able to expand and obtain a large market share, with some relocating to more consumer saturated markets hoping to profit from the change in regulation

Supply Chain Considerations

Companies involved in the production of plastic bags or related materials faced disruptions in their supply chains due to the ban. This led them to reconsider their location to ensure proximity to alternative suppliers.

Operation Costs

Industries that heavily relied on plastic bags had a steep increase in operation costs as was needed to comply with the new regulations. Industries therefore had to relocate to areas with cheaper operation cost to make up for the cost incurred for compliance.

Effects of NEMA's ban on plastic bags on industry management

Staff retraining

Industries that had a workforce tailored towards manufacturing plastic bags had to retrain their staff in the manufacturing of NEMA compliant bags.

Business reengineering.

Businesses whose sole focus was manufacturing plastic bags had to shift goalposts as their product had become stale. Management had to revisit and restructure the business so as to comply with the new regulations.

Legal Compliance.

Regulatory Compliance: Industries had to align with the ban's legal requirements. This meant closing for those not willing to adopt or incurring the cost of restructuring the business model as per NEMA's regulations.

Cost Implications

Higher Costs: The switch from plastic bags to alternatives (such as paper or reusable bags) increased costs for businesses. These costs included procurement, storage, and distribution. Industries had to invest in research, development, and implementation of sustainable alternatives.

Long-Term Sustainability Strategies

Industries now have to consider long-term strategies, such as promoting a circular economy, recycling initiatives, and minimizing waste. Management has to explore collaborative efforts within the industry to address plastic pollution collectively.