

PRINCIPLES OF INDUSTRIAL MANAGEMENT

BSc. COMPUTER SCIENCE

Group A9

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Discuss with example the role of Environmental Assessment in relation to location of an industry and industrial management, make references to NEMA:

Environmental Assessment

Environmental Assessment refers to the process of evaluating the potential environmental impacts of a proposed project. Termed as Environmental Impact Assessment (EIA) by NEMA, it involves the critical examination of a project's effects on the environment. The overarching goal is to ensure that decisions regarding proposed projects and activities align with environmental sustainability principles.

In the context of our discussion, we will explore the role of EA in both the location of industries and the management of industrial activities. NEMA, or the National Environment Management Authority, plays a crucial role by providing a comprehensive framework for environmental management, including the EA process and is mandated by the Environmental Management and Coordination Act (EMCA) no 8 of 1999 to administer the EIA. This framework is instrumental in setting standards and guidelines that shape how assessments are conducted, ensuring a systematic and thorough evaluation of potential environmental impacts during industrial activities.

Location of Industry:

Site Selection: Environmental assessments assist in pinpointing suitable locations for industrial activities by evaluating the environmental sensitivity of potential sites. This involves considering factors such as biodiversity, water resources, and proximity to human settlements. Essentially, this process gauges an environment's ability to endure changes without experiencing substantial harm or losing its ecological functions as a result of industrial development.

Example : A liquid petroleum plant was given license to operate in one of Nairobi's most crowded residential neighborhoods, where its explosion led to deaths. The nature of the location wasn't suitable and didn't comply with NEMA environmental compliance.

Zoning and Land Use: Zoning involves the establishment of rules for different areas of land, determining what can be built or done in each zone. Land use, on the other hand, is the actual purpose or activity for which a specific piece of land is designated. The aim is to make informed decisions that promote sustainable development and minimize negative impacts on the environment.

EA helps establish buffer zones between industrial and residential/commercial areas to minimize potential conflicts and mixed use zoning to foster sustainable urban development

Example: Cities are divided into zones such as residential, commercial and industrial. For land use one may operate a small grocery store or school within a residential area but not a school or a residential area within an industrial area as it may pose health risks to residents due to air and water pollution, breaching the EIA compliance.

Public participation and decision making: EA involves the community in the decision-making process, allowing residents to voice concerns and preferences. This is done through NEMA via social impact assessment under the EA. This considers the social implications of industrial projects, ensuring that community well-being is factored into location decisions.

Example: NEMA may require a social impact assessment for a proposed industrial zone, taking into account factors like employment opportunities and community health.

Compliance Monitoring: NEMA conducts **environmental audits** to assess industries' compliance with environmental regulations. These audits identify non-compliance risks, and areas for improvement

Example: A textile factory undergoes regular environmental audits to ensure it adheres to emission limits, waste disposal guidelines, and worker safety standards.

INDUSTRIAL MANAGEMENT

EA is a tool which seeks to minimize adverse impacts on the environment and reduces risks, hazards and vulnerabilities at all stages of the project: planning, design, construction, operation and decommissioning.

1. **Preventing Environmental Degradation:** EA helps in preventing environmental degradation caused by industrial activities. Before initiating any new industrial project, developers are required to conduct EIAs to assess potential environmental impacts.

For example, if a manufacturing plant is proposed, the EIA would evaluate the potential emissions, waste generation, and resource use associated with the plant's operations. By identifying potential environmental risks upfront, NEMA ensures that industrial activities do not cause irreparable harm to the environment.

2. **Promoting Sustainable Development:** Through the EIA process, NEMA encourages the adoption of sustainable practices in industrial management. EIAs assess not only the negative impacts but also identify opportunities for environmental enhancement and sustainability.

For instance, a proposed agro-processing plant might include measures in its EIA to promote sustainable agriculture practices among local farmers, thereby contributing to both environmental conservation and economic development.

3. **Ensuring Compliance with Environmental Regulations:** NEMA ensures that industrial activities comply with environmental regulations through the EIA process. Industrial projects that are

likely to have significant environmental impacts are required to obtain an Environmental Impact Assessment License from NEMA before commencing operations. This license is only granted if the project meets all environmental requirements outlined in the EIA report.

For example, a large-scale mining operation must obtain an EIA license from NEMA, demonstrating compliance with regulations regarding land use, water management, and rehabilitation of mined areas.

4. **Facilitating Pollution Control and Waste Management:** EIAs conducted under NEMA's regulations help in identifying pollution sources and developing strategies for pollution control and waste management.

For instance, before establishing a chemical manufacturing facility, the EIA would assess potential air and water pollution from chemical emissions and wastewater discharge. The EIA report may recommend installing pollution control equipment, such as scrubbers or sedimentation tanks, to mitigate environmental impacts.

5. **Stakeholder Engagement and Public Participation:** EA processes involve consultation with stakeholders, including local communities, environmental NGOs, and government agencies. This engagement allows for the incorporation of diverse perspectives into decision-making, potentially leading to better outcomes for both the environment and affected communities. Public consultations are held during the EIA process, allowing affected communities to express concerns, provide feedback, and suggest alternative approaches.

For example, communities living near a proposed industrial site may raise concerns about potential noise pollution or loss of access to natural resources, influencing the final design and operation of the project.

6. **Monitoring and Enforcement:** NEMA monitors industrial activities to ensure compliance with environmental regulations even after the issuance of an EIA license. Regular inspections and environmental audits are conducted to assess industrial performance and enforce corrective actions if necessary.

For example, if a manufacturing plant is found to be exceeding emission limits outlined in its EIA report, NEMA may impose fines or require the installation of additional pollution control measures to bring the plant into compliance.

NEMA'S ROLE:

NEMA is Kenya's environmental body. It coordinates research, investigations and surveys related to environmental management. It ensures that EIA processes are followed for major project, including developments. Its roles are:

1. **Conducting environmental impact assessments (EIAs):**

NEMA evaluates proposed development projects to determine their potential environmental impact. It identifies both negative and positive impacts of any project, considering effects on people, property and the environment. It ensures appropriate mitigation measures are put in place to minimize adverse impacts and enhance positive outcomes.

2. Research, investigation and surveys:

NEMA undertakes and coordinates research, investigations, and surveys related to environmental matters. It collects, collates, and disseminates information from these studies. These data informs decision making and policy formulation.

3. Resource valuation and land use planning:

NEMA assesses the **net worth or value** of natural resources in Kenya. It recommends land use planning strategies to relevant authorities. By understanding resource value, NEMA guides sustainable utilization and conservation practices.

4. Monitoring financial and human resources:

NEMA mobilizes and monitors the use of financial and human resources for effective environmental management. This includes overseeing budget allocations, staffing and resource allocation for environmental initiatives.

5. Baseline data generation and evaluation:

NEMA conducts EIAs to generate baseline data for monitoring and evaluating impacts during the project cycle. By establishing initial conditions, NEMA tracks changes and assesses the effectiveness of mitigation measures. This contributes to informed decision-making and adaptive management.