



1. Environment, Management, and Environmental Management

Environmental management is a broad and extensively used title enveloping a very wide-ranging, yet comprehensive subject matter.

Environment

- Derived from the world medieval French environment.
- Used to describe the action of surrounding something and also to refer to conditions in which a person or other organism lives and develops.
- Environments represent all surrounding to an existing being; it refers to the external settings and circumstances in a broad spectrum influencing the natural life cycle, and survival of all living and non-living creatures.
- It includes the set of natural, social and cultural morals and ethics presented in a specific location at a precise period, which has an impact in the existence of the human kind and in the generations to take place.
- It is not only the place in which life progresses, but moreover incorporates loving creatures.
- Objects, water, soil, air, and the associations connecting all of them on top of intangibles like culture.
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- Environment Day is celebrated every June 5

Concept of Environment

In the broad-spectrum theory of systems, an environment is a composite of outside features that operates on a system and establishes their track and mode of survival and continuity.

Natural Resources

- Resources found in nature that man uses to meet their needs (e.g., sunlight, water, air, coal, etc.)

Artificial Resources



- Man-made materials and substances created by humans by processing or combining natural raw materials (e.g., plastics, paper, glass, etc.)

Equation for Man-made Resources

Raw Materials + Tools + Skills = Man-made resources

Management

- The synchronization of the activities of a firm in order to accomplish definite goals and intentions.
- Consists of the interconnecting tasks of designing corporate policies and procedures toward the realization of an organization's ventures.

Environmental Factors

Physical

- Climate
- Geology

Biological

- Human Population
- Flora
- Fauna
- Water

Socio-Economic

- Employment
- Urbanization
- Social Conflicts

Environmental Management



- Administrative functions that expound, execute, and observe the environmental guidelines and procedures of a firm in an attempt to manage impact on the environment to protect and conserve natural resources.
- Centers on the development of human welfare for existing and future generations.
- Involves people, process, and discipline

Importance of Studying Environmental Management

1. Learn to evaluate and supervise environmental impacts in public and private sectors.
2. Develop specialized research expertise to contribute to environmental development.
3. Apply environmental management tools aligned with local, national, and global laws.
4. Promote global collaboration to harmoniously tackle environmental crises

2. Managing Resources and Introduction to Environmental Planning

Core Principles

- Balancing human needs with natural system preservation.
- Based on the foundational work by Foster et al. (2007), resource management centers heavily on systemic efficiency to prevent irreversible environmental deficits.
- Organizations and societies must transition from linear extraction models toward circular, closed-loop systems that prioritize long-term ecological balance over short-term financial gains.

Key Strategies

- Maximizing outputs while drastically minimizing waste
- Adoption of green business models & green technologies
- Rigorous implementation of the 3Rs: Reduce, Reuse, Recycle

Real-world implementation of environmental resource:

1. Large-Scale Infrastructure Management

- **The Challenge:** Recurring seasonal flooding threatened community safety, urban structures, and local economic stability in Iloilo City.



- **The Management Approach:** Construction of the Jaro Floodway and comprehensive remediation of the Tigum and Aganan river systems to manage natural water flows.
- **The Outcome:** Served as an environmental safeguard that enhanced health, sanitation, and long-term urban resilience, merging engineering with sustainability goal

2. Resource-Efficient Business Practices

- **Environmental Audits** - Organizations deploy Environmental Management Systems (EMS) to systematically assess internal energy consumption, material waste streams, and water inefficiencies.
- **Operational Shifts** - Companies transition to renewable power sources, apply rainwater harvesting systems, and commit to aggressive zero-waste production cycles to minimize environmental footprints.

Environmental Planning

- Environmental planning aims to strike a balance between development and environmental preservation, ensuring that human progress doesn't harm our planet.
- It identifies areas where development can take place with minimal negative ecosystem impacts and establishes clear guidelines for sustainable land use.

Core Components

- **Environmental impact assessment (EIA)**

Systematic evaluation of potential environmental impacts of projects or policies to minimize adverse effects and guide responsible decisions.

- **Ecological Focus**

Considers intricate ecosystem relationships, protects biodiversity, and restores disturbed environments for harmonious coexistence.

- **Conservation**



Manages water, forests, soil, and minerals sustainably, minimizing waste and depletion while maximizing long-term efficiency.

Tools & Techniques

- **GIS & Spatial Analysis**

Provides a spatial framework to analyze patterns, map environmental data, and consider location-based factors like land use and demographics.

- **Modeling & Simulation**

Uses computer-based models to simulate planning scenarios, predicting environmental consequences and identifying potential risks and benefits.

- **Risk Assessment**

Systematically evaluates potential hazards like chemical spills or climate impacts to develop management strategies that safeguard communities.

3. Government Initiatives

Government initiatives in environment management are official programs, laws, and actions by public authorities to protect nature, reduce pollution, and manage natural resources sustainably for the public good.

LAND

Example 1: *Ecological Solid Waste Management Act — RA 9003 (2000)*

Ecological Solid Waste Management is the systematic control of generation, storage, collection, transfer, transport, processing, and disposal of solid waste in a way that protects public health, the environment, and promotes sustainability.

- Requires waste segregation, recycling, and proper disposal
- Bans open dumping and burning of garbage → prevents soil pollution
- LGUs manage collection, recycling, and sanitary landfills

Example 2: *National Greening Program (Executive Order No. 26, 2011)*



The National Greening Program (NGP) is a major government reforestation and poverty reduction initiative in the Philippines. It aimed to plant 1.5 billion trees on 1.5 million hectares of public land by 2016.

- Massive reforestation program — plant trees across the country
- Restores forests, prevents soil erosion, protects watersheds
- Involves communities, schools, and volunteers

WATER

Example 1 *Clean Water Act — RA 9275 (2004)*

The Philippine Clean Water Act of 2004 (Republic Act No. 9275) aims to protect the country's water bodies from pollution from land-based sources (industries and commercial establishments, agriculture and community/household activities). It provides for a comprehensive and integrated strategy to prevent and minimize pollution through a multi-sectoral and participatory approach involving all the stakeholders.

- Penalizes dumping of waste and chemicals into rivers, lakes, and oceans
- Sets water quality standards for all bodies of water
- Industries must treat wastewater before releasing it

Example 2: *Philippine Fisheries Code — RA 8550 (1998)*

The Fisheries Code of the Philippines is officially known as **Republic Act No. 8550**, or the **Philippine Fisheries Code of 1998**. It was later heavily amended by **Republic Act No. 10654** in 2015 to stop illegal, unreported, and unregulated fishing. The law guides the protection, growth, and wise use of the country's fish and water resources.

- Protects marine resources, coral reefs, and fishing grounds
- Bans illegal fishing methods (dynamite, cyanide) that destroy water ecosystems
- Establishes Marine Protected Areas to preserve fish breeding grounds

AIR

Example 1: *Philippine Clean Air Act — RA 8749 (1999)*



Republic Act No. 8749, also known as the Philippine Clean Air Act, is a landmark environmental law enacted in 1999 with the goal of protecting and enhancing the quality of air in the Philippines. The Clean Air Act also emphasizes the importance of integrating air quality management into national and local planning and development processes, ensuring that air pollution control is prioritized in both urban and rural areas.

- Regulates smoke from vehicles, factories, and industries
- Bans smoking in public places and incineration of waste
- Sets emission standards — vehicles must pass emission tests

Example 2: Euro 4 / Euro 5 Emission Standards (DOE & DENR)

Euro 4 and Euro 5 Emission Standards are government-mandated limits on harmful pollutants released from vehicle exhaust set by the Department of Energy (DOE) and Department of Environment and Natural Resources (DENR) to drastically reduce air pollution by requiring cleaner fuels and newer, better engine technology.

- Requires cleaner fuels and newer vehicle engines
- Reduces harmful pollutants from cars, trucks, and motorcycles
- Gradual shift toward electric vehicles and public transport modernization

HUMAN RESOURCES

Example 1: Universal Access to Quality Tertiary Education Act — RA 10931 (2017)

Republic Act No. 10931 Universal Access to Quality Tertiary Education Act is a Philippine law that guarantees FREE TUITION and exemption from miscellaneous fees for all eligible Filipino students in State Universities and Colleges (SUCs), Local Universities and Colleges (LUCs), and state-run technical-vocational schools to make quality higher education accessible to everyone regardless of family income.

- Free tuition and fees in all State Universities and Colleges
- Free school supplies and subsidies for poor but deserving students
- Makes college education accessible to everyone regardless of income

Example 2: Universal Health Care Act — RA 11223 (2019)



Republic Act No. 11223 Universal Health Care Act is the landmark Philippine law that automatically enrolls every Filipino citizen into the National Health Insurance Program (PhilHealth) as a right, ensuring affordable, accessible, and high-quality health services for all.

- All Filipinos automatically enrolled in PhilHealth
- Zero balance billing — no additional fees in public hospitals
- Free consultations, lab tests, and medicines for all citizens

4. Environmental Management System

- An **Environmental Management System (EMS)** is a framework that helps an organization achieve its environmental goals through consistent review, evaluation, and improvement of its environmental performance.
- It is abroad and extensively used title enveloping a very wide ranging, yet comprehensive subject matter.

Concept of Environment

- **Environment** is a composite of outside features that operates on a system and establishes their track and mode of survival and continuity.
- **Natural Resources** are resources found in nature that man uses to meet their need
- **Carbon footprints** is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions.
- **Greenhouse gases** (also known as GHGs) are gases in the earth's atmosphere that trap heat.

Management

- The synchronization of the activities of a firm in order to accomplish definite goals and intentions.
- Consists of the interconnecting tasks of designing corporate policies and procedures toward the realization of an organization's ventures.

An environmental management system (EMS) is similar to other management systems, such as those that manage quality or safety. It assesses your business' strengths and



weaknesses and helps you identify and manage environmental risks and opportunities. It can also save you money by increasing efficiency, it ensures you comply with environmental legislation and provides a framework for continual improvement.

Adopting an EMS does not mean that everyone in your company has to stop driving or you have to set ambitious targets for energy reduction. It is about understanding how your organisation impacts on the environment and those living or working nearby. Both can be affected by your activities, such as by noise, emissions or waste production. An EMS also helps you to identify how environmental issues may in turn affect your business e.g. availability of resources or flood risk.

An EMS then enables a systematic approach to manage these aspects in order to reduce environmental risk. This will help you plan for the future. You can then set realistic objectives each year for improving your organisation's environmental performance and sustainability.

What is the importance of an environmental management system?

Having an effective EMS helps businesses reduce their impact on the environment, as well as improving health and safety for both employees and the community. An EMS also ensures that a company's activities do not defy any environmental legislation or regulations.

What are the key concepts of the environmental management system?

The basic functions of good environmental management are **goal setting; information management; support of decision making; organizing and planning of environmental management; environmental management programs; piloting; implementation and control; communication; internal and external auditing**, etc.

What are the characteristics of an environmental management system?

Top 10 Elements in a Successful Environmental Management System:

- Environmental Policy.
- Environmental Requirements and Voluntary Initiatives.
- Objectives/Targets.
- Structure, Responsibility and Resources.



- Operational Control.
- Corrective and Preventive Action and Emergency Procedures.
- Training, Awareness and Competence.

Benefits of EMS

1. Helps maintain compliance
2. Reduce operating costs
3. Integrate environmental programs into mission
4. Increase employee involvement
5. Reduce environmental impacts

Role of Management in EMS

1. Develop and approve environmental policy as a statement of commitment.
2. Provide the necessary resources. Ex training resources
3. Take responsibility to ensure EMS is established, implemented and maintained
4. Be a constant advocate of the EMS
5. Provide the necessary support to overcome barriers

What are the three key components of EMS?

The three primary processes of a management system include:

- Core processes,
- their outputs,
- and the identification of significant environmental aspects and impacts.

5. The R's in Environmental Management System

Definition

A hierarchy of actions used to minimize waste and conserve resources.

Core 3 R's

1. Reduce
2. Reuse



3. Recycle

Extended Framework

1. Refuse - saying NO to inefficient, non-recyclable, or unnecessary materials.
2. Reduce - minimizing volume of resources consumed during operations.
3. Reuse - extending lifespan of an object by using it repeatedly for its original intent.
4. Repurpose - adapting a discarded asset for a new function.
5. Recycle - processing waste materials to extract new raw components for new manufacturing cycles.

