

**Ministry of Higher Education and Scientific Research
University of Babylon
College of Engineering
Department of Environmental Engineering**

Environmental Management

**Bachelor's degree course
Fourth Year**



2025

Environmental Management Definition

- **Environmental management** is defined as a system that incorporates processes for summarizing, monitoring, reporting, developing and executing the environmental policies. The aim of encouraging an environmental management system is to ensure the healthy state of our planet for future generations. It also works towards preserving all forms of life.
- **Environmental management** is the process of planning, organizing and coordinating to control environmental impacts resulting from human activities or industrial processes. It aims to maintain environmental sustainability and promote sustainable environmental practices by taking the necessary measures to reduce pollution and protect natural resources.

The process of environmental management involves:

- Identifying the environmental desired outcomes
- Identifying the physical, economic, social, cultural, political and technological constraints on obtaining these outcomes
- Considering the most feasible options for achieving the desired outcomes
- Anticipating, avoiding, and solving environmental and conservation issues

Objectives of environmental management

The objectives of environmental management are as follows-

1. Identifying environmental issues
2. Finding solutions for environmental issues
3. Help to renew natural resources
4. Developing monitoring systems and research institutions
5. Control environmental pollution
6. Setting environmental targets to minimize the environmental impact of an organization
7. Assess the impacts of potential activities on the environment
8. Identify, develop and implement policies related to sustainable development
9. Minimize the use of natural resources

10. Establishing limits to avoid overuse
11. Regeneration of degraded environment
12. Review the environmental goals of an organization
13. Ensuring environmental awareness program is being followed by every employee
14. Review existing technologies and try to make them eco-friendly
15. Make maximum utilization of natural resources
16. Encourage resource conservation programs
17. Develop strategies for improving the quality of life
18. Implement ways for environmental protection
19. Minimize the impact of natural disasters

Importance of environmental management

Environmental management has an important role to play in the protection of our environment.

Customers, clients, employees, stakeholders, investors expect business entities to manage their activities in such a manner that it does not have a negative impact on the environment.

It has become necessary for every business entity to implement an environmental management system in place to manage environmental risks.

The importance of having an effective environmental management process in place is as follows-

- Reducing carbon emissions
- Processing all the waste in a safe and effective manner
- The effective and wise use of energy and resources
- Preventing pollution

Features of environmental management

- The concept of environmental management acts as a tool to improve environmental performance
- It works towards waste minimization
- Is a systematic approach for overseeing environmental affairs of an organization
- Addresses concerns related to the environment through the evaluation of related practices
- Encourages employees to undergo training to achieve desired objectives
- Helps to determine the impact and objective of a product or service
- Assigns responsibility and accountability in a firm

Advantages of environmental management

1. Effective use of resources

Organizations have developed and executed several policies to manage resources, minimize waste and reduce costs.

2. Improve sustainability

Effective environmental management policies encourage business entities to improve sustainability so that they can gain a competitive edge and give the business a good chance for long-term success

3. Helps in staying out of trouble

An organization that implements environmental management policies stays ahead of regulations imposed by environmental affairs division. He does not have to pay any penalty for violating the balance of nature or adopting unethical practices.

4. Pollution control

Environmental management practice has encouraged numerous business entities to take steps for pollution control

5. Improved public image

An organization with environmental management procedures in place works towards preventing pollution, minimizing environmental risks and preserving natural resources. This will enhance the trust of its customers, attract new clients, boost employee morale and help the firm in entering new markets.

6. Finance

Because of their environmental management policies and procedures companies are able to impress investors. It has now become easier to get the necessary finance.

7. Improved management efficiency

An integrated environmental management policy will improve the overall management system of a firm. Documenting routine operations and compliance plans will help in capturing the attention of other employees and streamlining operations. This will help to decrease waste and environmental risk.

8. Marketing and Sales opportunities

Business entities are projecting themselves as companies that are eco-friendly. They are highlighting their commitment to improved environmental policies via impactful advertising and this has helped them in creating a strong customer base. People are becoming eco-friendly and want to be associated with like-minded companies.

9. Empowered employees

Employees can relate to environmental management program and understand its impact on the society as a whole. This encourages employee empowerment as they believe it is their contribution that is making a difference in the world.

10. Certification of recognized standards

When a company strives to obtain a certification to recognized standards it is gaining business credibility with stakeholders and customers alike.

Disadvantages of environmental management

1. The cost of developing, monitoring and implementing effective environmental management policies is high.
2. Too much of trouble for small business entity who have limited resources at its disposal
3. Requires additional use of time and resources that can prove expensive in terms of time, effort and resources to an organization.
4. An organization has to offer training to its staff and this can prove expensive and troublesome to management.

1. Question: If an organization aims to reduce its carbon emissions by 20% and currently emits 500 metric tons of carbon annually, how much reduction is needed in metric tons?

$$\text{Reduction} = (20/100) * 500 = 0.2 * 500 = 100 \text{ metric tons}$$

2. Question: A company implemented environmental management policies resulting in a 15% reduction in waste production. If the initial waste produced was 800 tons, what is the new waste production in tons?

$$\text{New Waste Production} = 800 - (15/100) * 800 = 800 - 0.15 * 800 = 680 \text{ tons}$$

3. Question: Company XYZ invested \$50000 in environmental management initiatives, and as a result, they reduced their resource consumption by 25%. How much money did they save in resource costs?

$$\text{Cost Savings} = (25/100) * \$50000 = 0.25 * \$50000 = \$12500 \text{ Total Money Saved} = \$50,000 - \$12,500 = \$37,500$$

4. Question: If a business entity had an initial pollution level of 100 units and environmental management practices resulted in a 40% reduction, what is the new pollution level in units?

$$\text{New Pollution Level} = 100 - (40/100) * 100 = 100 - 0.4 * 100 = 60 \text{ units}$$