**Environmental Management System - A Tool for Sustainable Business**

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**Abstract**

Sustainability requires integrating environmental, social, and economic goals and using best practices to reduce risks and uncertainties. With the current drive for competitive advantage and improved efficiencies, organisations are integrating sustainable development initiatives into business systems in new ways. Environmental Management System (EMS) is one such tool to achieve sustainability in organizations. In this chapter we discuss the importance, model, benefits and challenges involved in implementation of environmental management system in organizations.

1. **Introduction**

Environmental degradation is an intimidating issue for our planet and most important feature of the present environmental degradation is that it is caused more by anthropogenic than natural phenomena. Though economic progress is an indicator of our progressing economy but economic development is directly proportional to environmental degradation or in simple terms we can say economic development is happening at the cost of environment and the rate at which our resources are getting depleted it is going to a question of our sustenance. Therefore, sustainable development comes in picture with emphasis of judicious use of resources.

After United Nations Conference on Sustainable Development at Rio de Jainero, Brazil 1992, adopting sustainability in business is not a choice but a compulsion for their existences. As business has always depended directly or indirectly on the natural world and as in business and when we use these natural resources without any limit, resource depletion and natural environment changes are bound to occur. Thus, environmental dimension has become an important factor in the managerial decisions for business and a progressively increasing number of firms have shown interest in voluntary environmental commitments to eliminate or control negative environmental impacts associated with their activities (Massoud et al,2010).

Nattrass and Alto mare (1999) suggested environmental commitments over profitability as a evolutionally strategy for corporates and providing them with an additional competitive edge over their counter parts. They also proposed a global model of sustainability including adoption and implementation of organizational green management practices. Amiri et al (2015) suggested protecting environmental is no longer a liability and a stress for the companies but also a tool to reduce liabilities, competitive advantage and a way comply with rules and regulation avoiding penalties. Massoud et al,2010 reported that companies are shifting from a relatively reactive approach to more environment proactive approach. On the corporate level, this approach is reflected by the implementation of an environmental management system (EMS), which is certified by ISO 14001. Amiri et al (2015) suggested environmental compliance through the ISO 14001 certification appears to be one of the most adoptable method to improve their environmental performance of organizations. An EMS can be considered as a tool for sustainable development and helps an organization to reduce its environmental "footprint" i.e., the environmental impact associated with its activities, products, and services. In line with the aforementioned studies, this chapter attempts to provide a basic overview of the concept of environmental management at the introductory level and discuss basic EMS model, its importance, benefits and challenges involved in implementation by the organizations. The chapter attempts to contribute to the field of environmental management and the stakeholders of sustainable development.

1. **Sustainable Development**

Economic progress and environmental degradation are closely interlinked. Overexploitation of natural resources has led to problems of unsustainability including environmental, social and individual crisis interfering with life sustenance. Therefore, comes the need for sustainable development.

Sustainable development in simple terms means a development that sustains or lasts longer. The concept of sustainable development was globally introduced at Earth Summit, Rio de Janerio, Brazil 1992. The most widely used definition of sustainable development is the one given by Brundtland as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations General Assembly, 1987, p. 43). In simple terms sustainability can be describes as an “Economy in equilibrium with basic ecological support systems.

Sustainable development highlights two key aspects, the concept of needs and the idea of limitations. The concept of needs talks about the essential needs with special refence poor and idea of limitation refers to limitation imposed by the state of technology and social organization on the environment's ability to sustain life. The main objective of sustainable development is to improve quality of life and well-being, to meet the needs of both present and future generations, to provide justice and equity in terms of recognition, process & procedure and to live within ecosystem limits.

Sustainability is a process which tells of a development of all aspects of human life affecting his sustenance. It means it includes pursuit of economic prosperity, environmental quality and social equity and these are famously known as three dimensions of sustainability (Zavodna, 2013).

Economic Sustainability: An economically sustainable system able to produce goods and services on a continuing basis.

Environmental sustainability: An environmentally sustainable system maintains a stable resource base, avoiding over-exploitation of resources only to the extent that investment is made in adequate substitutes.

Social sustainability: A socially sustainable system provides fairness in distribution and opportunity, adequate provision of social services including health and education, gender equity, and justice.

The three component concept of sustainability or sustainable development is also referred to as the triple bottom line. Since the publication of Brundtland report by the United Nations, industry practice has embraced the notion that sustainability derives from focusing on the triple bottom line (Slaper and Hall, 2011).

Sustainable development can be defined as an approach to the economic development of a country without compromising with the quality of the environment for future generations. Sustainability requires integrating environmental, social, and economic goals and using best practices to address risk and uncertainty.

1. **Environmental Management**

Environmental Management can be defined as a process to protect and improve health of the environment by adopting processes and procedures involved in conservation, protection and regeneration of nature. It also includes promoting positive human behaviours that make a constructive impact on the natural environment. Thus, in simple terms environmental management helps to improve the relationship between the human beings and environment to check destructive damages caused due to anthropogenic activities.

Environmental management supports sustainable development as it involves the wise use of activity and resources to have least impact on environment and environmental conservation, which consolidates ecology, policy making, planning and social development. Environmental management has a multidisciplinary and interdisciplinary approach and assists us to identify and address problems simultaneously, though timescale involved is often long and the environmental concerns range from local to global.

Environmental management aims to ensure that ecosystem services are protected and maintained for future human generations. Main objectives of environmental management are to:

1. Identify the environmental problem and their adoptable and effective solutions.
2. Restrict and regulate the exploitation and utilization of natural resources and regenerate degraded environment.
3. Control environmental pollution and revise the existing technologies
4. Implement environmental protection and conservation through law and policy making.

Socio-economic development of a nation will be greatly impacted, if the natural resources are overexploited. Therefore, environmental management takes into consideration the ecological constrains and socioeconomic needs of the society i.e., it involves socio economic developments on one hand and maintenance of environmental quality on other hand. So, we can say **that environmental management has two major aspects:** (i) Socio-economic development and (ii) Stability of individual ecosystems and biosphere (Park, 1981).

Environmental management can be understood as finding practical ways for saving water, energy, and materials, and reducing negative environmental impacts. It refers to rational adjustment of man with nature involving judicious exploitation and utilization of natural resources without disturbing the ecosystem balance and ecosystem equilibrium. Main driving forces to be ecologically sustainable organization requires environmental perception, public awareness, environmental education, training, resource management, environmental pollution control and environmental impact assessment.

Under Environmental management, adoption of Environmental Management System (EMS) by the organization is considered to be first and foremost step towards their improved environmental performance.

1. **Environmental Management System (EMS)**

Environmental agenda is quickly becoming an integral part of business strategies as improving environmental performance of business is one way of limiting environmental damage. Organizations are redesigning processes to reduce environmental impact, improve production efficiency, and reduce costs. And without an effective environmental strategy, organizations will not understand legal and financial pressures, including liabilities, standards and operational laws. Therefore, organizations need systematic procedures with continuous motoring and improvement to improve their environmental performance and that is what exactly is Environmental Management System (EMS).

Environmental management systems (EMS), provide a systematic framework for organizations to effectively manage their environmental affairs. Implementing an EMS that conforms to the ISO 14001 standard may help businesses integrate environmental perspectives into their operational plans to reduce the potential negative impacts created by business. An Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency (USEPA).

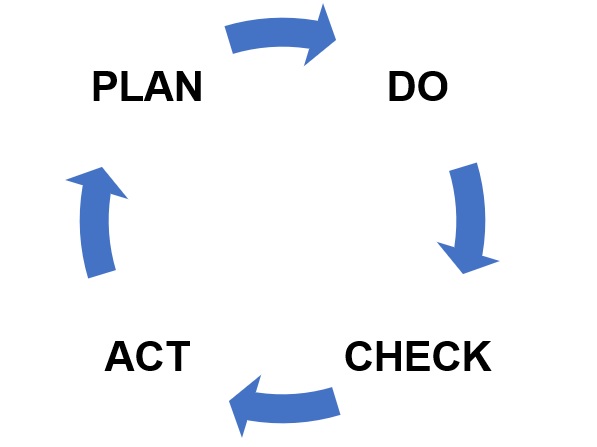
Environmental management system (EMS) refers to the management of an organisation's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organisational structure, planning and resources for developing, implementing and maintaining policy for environmental protection. Same was stated by Khanna and Anton (2002), that adopting EMSs refers to adhering to a set of environmental management practices, such as formulating an environmental policy, training and adopt measures to avoid pollution and performing internal environmental audits. As per Nash et al. (2001), EMS refers to the processes by which a firm establishes a set of formal organizational environmental policies, goals, strategies and administrative procedures that promotes firms’ performance.

**A. Features of EMS**

* It is part of an organisation’s management system used to develop and implement its environmental policy and manage its environmental aspects.
* It serves as a tool to improve environmental performance and supports sustainable development.
* It checks organization’s overall management structure that addresses immediate and future impacts of its products, services and processes on the Environment
* It provides a systematic methodology for managing an Organization’s Environmental Behaviour
* It gives order and consistency for organizations to address environmental concerns through the allocation of resources, assignment of responsibility and consistent evaluation of practices, procedures and processes
* It focuses on continuous improvement of the system

**B. Basic EMS Framework**

An EMS follows a Plan-Do-Check-Act cycle (PDCA) model. It involves process of developing an environmental policy, planning the EMS and then implementing it. The process also entails checking the system and acting on the findings. The model is continuous because an EMS is a process of continual improvement in which an organization is reviewing and revising the system on a continual basis. This model can be employed by a wide range of organizations - right from manufacturing facilities to service industries to government agencies.



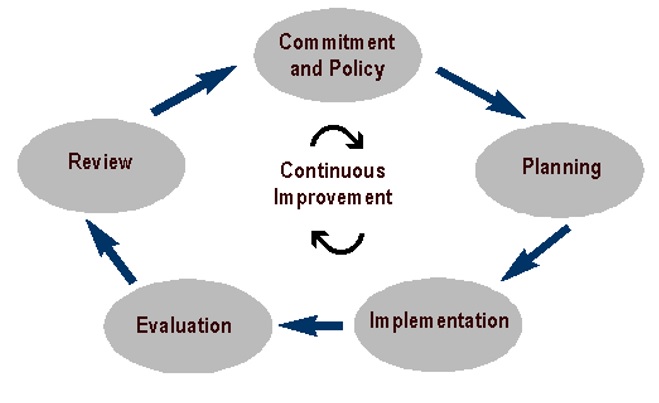
**BASIC EMS MODEL**

* Plan: Planning, identifying environmental aspects and establishing goals
* Do: Implementing, includes training and operational controls
* Check: Checking, includes monitoring and corrective action
* Act: Reviewing, includes progress reviews and acting to make needed changes

**C. Elements of an EMS**

Most important element for an EMS is organizational commitment. For an effective EMS to be developed and implemented, top management and staff needs to be commitment. Other essential key elements include environmental policy, planning, implementation, evaluation and review. The model is continuous because an EMS is a process of continual improvement in which an organization is reviewing and revising the system

* **Policy Statement:** A statement of the organization’s commitment to the environment. Environmental Policy sets the direction for the way the organisation plans to manages its environmental impacts, it includes commitments to pollution prevention, legal compliance and continual improvement and framework for objectives and targets to be achieved in terms of environmental performance. It is set by top management and must be effectively communicated to staff and other stake holders.
* **Planning :** It refers to development of objectives, targets and Environmental program or action plan, in simple terms environmental goals for the organization keeping in mind the environmental aspects, their significant environmental impacts, legal requirements for operations and other compliances which the organization needs to adhere to. *Objectives are*  overall goal consistent with environmental policy that the organization wants to achieve and t*argets are* detailed performance requirement to achieve objective. Environmental program or action plan are the steps which need to be implemented to achieve objectives & targets, it also includes responsibility, means and timeframe.
* **Implementation and Operation**: It includes the initiatives take to meet objectives and targets. It includes provision of funds and resources from management and allocation of roles and responsibilities among the employees to ensure their participation. It also includes awareness and training instructions to ensure employees are aware and competent of fulfilling their environmental responsibilities. Documentation is an important part of operational aspects, it is required to document everything starting from policy statement, procedures, responsibilities, work instructions and even the communications sent to stakeholders. Another most important element of implementation is emergency preparedness and response to minimize the environmental impact of accident and emergency situations
* **Evaluation:** It includes monitoring and measurement of the activities, functions and processes that are associated with a significant environmental impacts and take corrective and preventive actions in case of potential and actual nonconformities to avoid reoccurrence. Periodic evolution of compliance with legal and other requirements is another component of checking. Recordkeeping involves retaining all environmental records required for the successful development, implementation and maintenance of the EMS. EMS audit is most important component of checking as implementation of internal audit program helps to evaluate conformities required for EMS and International standard, evaluate effectiveness of your EMS and provide information to top management for decision making.
* **Review:** It includes holistic and strategic evaluation of audit finding by top management and to check degree to which organization's environmental policy, objectives and targets, programs and procedures are functioning to improve environmental performance and according take decisions to revise policy and planning to achieve organizations goals.



**COMPONENTS OF EMS**

**D. Benefits of EMS:**

EMS makes organizations conscious about the effect their business is having on the environment and it is itself a great step towards sustainability. Environmental management system has tangible benefits for business organizations. EMS can help company to minimize waste and resource use and enhance efficiency, thereby reducing cost, help to ensure compliance with regulatory requirements, encourage employee involvement and improve relations with the stake holders (Darnall and Edwards, 2006).

Case studies indicate EMS helps in financial benefits by reducing the cost. Cost saving is often associated with consuming less resources, producing less waste, better operational efficiencies and reduced liabilities. With EMS in place liabilities associated with accidents and penalties related to non-compliance to regulatory authorities are greatly reduced. Amiri et al (2015) suggested based on a study consisting of sample of 43 French polluting firms that an EMS improves the environmental performance by lowering emissions and their finding are consistent with the idea EMSs helps firms to gain competitive advantages and economic performance.

**E. Challenges in EMS Adoption:**

Successful implementation of EMS requires top management support, employee participation and availability of resources. There are a variety of factors that interfere in successful implementation of EMS in organizations, adoption problems are more in case of small and medium sized firms because of lack of funds, motivation and strategic policies. The National Environmental Education and Training Foundation (NEETF) classified the factors hampering adoption of EMS in an organization into three categories motivational, resource and implementation issues.

Motivational factors include lack of customer requirements for EMS, misconception that environmental issues are a low priority, belief that EMS is not widely accepted and the perception that EMS is complicated. Resource barriers include the cost and time to establish EMS as well as post implementation operational cost. Implementation factors include the fear of discovering non-compliance with regulations or permits and uncovering internal problems within the organization like staff issues, company policies and process issues etc,

1. **Conclusion:**

Environmental degradation and economic development are closely related. To impede environmental damages beyond the current scenario it is required to embrace sustainable development, which is also in alignment with UN Generally Assembly’s Agenda 2030 of “Transforming the World” with implementation of Sustainable Development goals. Sustainability is based on a simple principle that everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To seek sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations. Sustainable business is what we need in current scenario as Green Consciousness is greatly growing among the consumers and therefore organizations need to adopt environmental management initiatives to give their businesses a competitive advantage. Environmental Management System is tool for sustainable development and its adoption by the organizations is regarded as first step towards sustainability. An EMS helps an organization systematically manage its environmental "footprint" the environmental impact associated with its activities, products, and services. EMS not only helps organizations to achieve sustainability but also provides organizations competitive advantage, financial gains, reduced liabilities and business’ success.

***Turning every business into an environmental industry will involve applying new principles …. First, we need to make more with less….second, we need to design out waste…. Third, we must begin to decarbonize our energy supply.***  ~**David Miliband**

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