
Environmental Management Systems for Construction Firm

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ABSTRACT-Environmental management system is designed to have various degrees of inclusion of all environmental aspects of an organization. Environmental management cannot be restricted to waste management, it includes all aspects of the organization such as personnel training, purchasing, management organization, communication risk management and emergency planning.

The objective of environmental management systems (EMS) deals with the minimization of potential impact on environment due to proposed project. The potential impacts on the environment from the project are identified based on the nature of various activities associated with the location, construction and operation of the proposed project and also on current status of environmental quality of proposed project.

Key words- Environmental management, sustainable development, construction industry.

1. INTRODUCTION

Construction projects face various problems not only to get finished within the estimated time period and financial plan but also to reduce and diminish disastrous effects on the environment.(Hendrickson and Horvath 2000) Construction has remarkable influence on the natural environment. Even a minor impact can be so destructive that it can lead to health and environmental problem as well as costly cleanup activities. Proper management plans and standards help to get rid of troubles faced during and after completion. In this article we have taken environment management system and ISO 14001 standard in consideration. Our purpose is to summarize the essential constituents of an EMS, the assets and costs, as well as the necessity for construction firms to apply such system.

2. DESCRIPTION OF ENVIRONMENTAL MANAGEMENT SYSTEM

An EMS functions to confront various impacts on the environment due to various activities governed by the organization. It is used to up hold compliance with environmental regulations, decrease environmental costs, lower the level of liabilities, train employees, develop pointers of impact and upgrade performance.

2.1 CHARACTERISTICS OF EMS: The effective EMS must have the following features-

1. Goals and methods for meeting environmental requirements
2. Strategies for maintaining proper documentation for achieving goals
3. Well defined structure and existence of adequate resources
4. Suitable and preventive measures for emergency
5. Training plan and periodic review of goals, responsibilities and risks
6. Plan for periodic auditing and performance evaluation of how well EMS is working in achieving the goals

2.2 BENEFITS OF EFFECTIVE EMS

1. Improved regulatory compliance
2. Reduction in liability and risks
3. Reduction of harmful effects on the environment
4. Prohibition of pollution and saving of money

5. Improvement in site and reduction of accidents and injuries related to emission, spills and release
6. Strong relationships with government agencies, groups and investors
7. Leads to continuous environment improvement

It is observed that managing quality, environment and health & safety separately leads to over burden and tedious work. Hence integrated management system is needed which helps in sharing information, saving time and improving the estimation of risk. A noticeable example of possible assimilation is the ISO 14001 standard, which coincides the ISO 9000 quality management standard in many ways.

2.3 ISO 9000

ISO 9000 is series of quality management standard which was first published in 1987. This helps in quality control and promotes International trade. The standard used as a guideline for quality management by various industries and government organization.

3. SUSTAINABLE DEVELOPMENT

In 1987, World Commission on Environment and Development firstly used the word “Sustainable Development”, in its report “Our Common Future”. This report underlines the need for balancing environment and economic growth. Sustainable development can be defined in many ways. The definition in report “Our Common Future” is as follows- “The development that meets the need of the present without compromising the ability of future generation to meet their own needs”.

4. STANDARDS OF ISO 14001 ENVIRONMENTAL MANagementsYSTEM

The ISO 14001 acts as a standard for highlighting EMS in the International Organization of Standardization’s ISO 14000 series. The ISO 14001 standard defines an EMS as “A management tool enabling an organization of any size or type to control the impact of its activities, products or services on the environment”. It acts as a framework for managing issues related to environment for and organization. The system is designed for any company regardless of type, size, location and level of environmental responsibility.

4.1 ISO 14001 EMS IN CONSTRUCTION

All though this topic is new for construction sector but many policy makers and corporates support, develop and implement such system.

Table 1- List of ISO 14001 certification for some countries

COUNTRY	NO. OF ISO 14001 CERTIFIED ORGANISATION
Germany	1400
UK	1009
Japan	2338
USA	480
Australia	200
India	138

Japan is leading the world. India is lagging behind in the list but the awareness regarding environment is increasing with time and we hope to see more ISO certified industries in the near future. This ISO certification increases the image of the industry in people’s perspective and reflects awareness for environment.

4.2 ELEMENTS OF ISO 14001

The elements of ISO 14001 for construction firms include-

- i. *Environmental policy*: - Environmental policy is described by company’s management team. It varies from company to company depending on its size and the potential impact it sustains on environment. It must be such that it helps in achieving objectives and targets along with accomplishing rules and regulations.

ii. *Planning*:- The planning must be such that it takes every aspect and impact into its account, from economical to environmental along with fulfilling legal requirements. From setting goals and targets and selecting proper management program is crucial part of planning.

iii. *Implementation and operation*:- It involves adopting suitable structure and assigning responsibilities for effective working of EMS Training, communication, documentation, operational control & emergency preparedness and response are various fractions of work which come under it.

iv. *Checking and corrective action*: - EMS helps in knowing measures to be adopted to meet goals and reviewing progress so that we can continue to get closer and closer to our goals. It includes-

Monitoring and measurement

Maintaining records

Environmental audit

v. *Management review*:- It is an over view which provides assurance whether EMS is performing accordingly and that the company's targets and objectives are being focused. It provides information about the weak areas here more attention is needed along with the areas which are operating well.

4.3 VARIOUS ENVIRONMENTAL IMPACTS AND THEIR MITIGATING MEASURES

Environmental impact	Mitigation measures
a) Storm water runoff	<ul style="list-style-type: none"> • Grass filter strips • Grass swales • Wet detention ponds • Porous pavement
b) Diesel emissions	<ul style="list-style-type: none"> • Use of clean burning fuel technology • Use of green fuels • Use of catalyst based filter on engine exhaust
c) Dust and particulate emissions	<ul style="list-style-type: none"> • Watering to minimize evaporation • Use of wind breaks • Green belt development • Construction in phases
d) Noise	<ul style="list-style-type: none"> • Reduction at source • Use of noise barriers, material stock piles • Better control and management of equipments
e) Other miscellaneous waste	<ul style="list-style-type: none"> • Reuse and recycle • Proper storage and disposal activities • Proper planning and management technique • Return and resale

5. SOCIO-ECONOMIC DEVELOPMENT THROUGH EMS

- a) Income generation opportunity during construction and occupancy phase.
- b) Improved working environment for employees.
- c) Reduction of work related injuries and diseases.
- d) Development of proper interphase between the work and human resources.
- e) Increase in recreational activities e.g. indoor games facilities.
- f) Beautification of complex and surrounding areas.

6. CONCLUSION

- a) Management is one of the possible and best ways for success of construction firms which insist to eliminate or reduce harmful effect on environment.
- b) All management system and policies adopted or implemented must be goal oriented and must fulfill all the objectives.
- c) ISO 14001 helps to select appropriate EMS and also maintain stability between expenses and profits.
- d) ISO 14001 does not define environmental performance criteria to acquire , hence further improvement in this criteria must be focused and developed.

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