

ACTA TECHNICA CORVINIENSIS

- Bulletin of Engineering

Tome X [2017]
Fascicule 1 [January - March]
ISSN: 2067 - 3809



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ENVIRONMENTAL MANAGEMENT SYSTEMS: CONTEMPORARY TRENDS AND PRACTICES

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Abstract: Increased interest in environmental quality, as well as obligations arising from the EU accession process (particularly derived from the Chapter 27: Environment) impose trend of responsible environmental management. At the other hand, global trends such as the establishment of environmental management system based on ISO standards have the similar goals. The aim of this paperwork is to represent a comprehensive review of contemporary trends and practices in the field of environmental management, with particular regard to risk based approach. With no less importance, this paper seeks to demonstrate the application of risk-based environmental management practices in organizations already proven in the field of corporate social responsibility.

Keywords: environment, risk, management, methodology

INTRODUCTION

Contemporary trends within the field of the environmental management indicate that there has been an obvious shift from the traditional "top-down" approach when defining the environmental protection policy, to the concept of environmental management towards a more open system of governance at all levels, where decisions are made on the distribution and use of environmental resources. If properly implemented, this approach recognizes the needs and obligations of those who most influence the use of environmental resources, without losing the possibility of involvement of the wider community in the management process. The basis for undertaking a series of activities starts from the harmonization of legislation, institutional organization in the field of environmental protection, funds raising etc. to concrete plans on taking preventive measures.

Compared to all environmental factors, it is possible to group existing approaches in environmental management, in next order:

1. the first group consists of pollution control mechanisms for each environmental factor individually, meaning independently of one another (i.e. Command and Control Regulations, which, for

example, relates solely to the protection of water resources without considering the protection of soil, etc.). This approach is quite characteristic for the seventies of the twentieth century,

2. a second group consists of mechanisms that have a touch of integration, or perceived impacts of pollution globally, i.e. in respect of all environmental factors, but does not consider the activities and processes of society. This approach is characteristic for the eighties of the twentieth century,
3. the third group includes mechanisms which in addition to environmental factors considers factors of society, in terms of prevention, but only at the level of operators that generate pollution (consideration of material and energy flows). This approach is characteristic for the nineties of the twentieth century,
4. the fourth group consists of industrial ecology mechanisms where besides pollution prevention efficiency of utilization of environmental resources is also considered, as the performance reduction regarding emitted pollution, eco-efficiency and dematerialization of production. This approach is characteristic for the first decade of the twenty century,

5. fifth group consists of mechanisms that have a touch of sustainability, where in addition to industrial ecology, there is a look at the social component, inter and intra-generation justice, and a tendency towards an equitable distribution of profits as a result of the exploitation of environmental resources. This approach is characteristic for the second decade of the twenty-first century [1][2].

MATERIAL AND METHODS

As discussed in [3] a modern environmental management system (EMS) requires the identification of environmental aspects, root causes of their occurrence and calculus of their impacts.

An illustrative flowchart of EMS procedures at the level of an organization is presented at Figure 1.

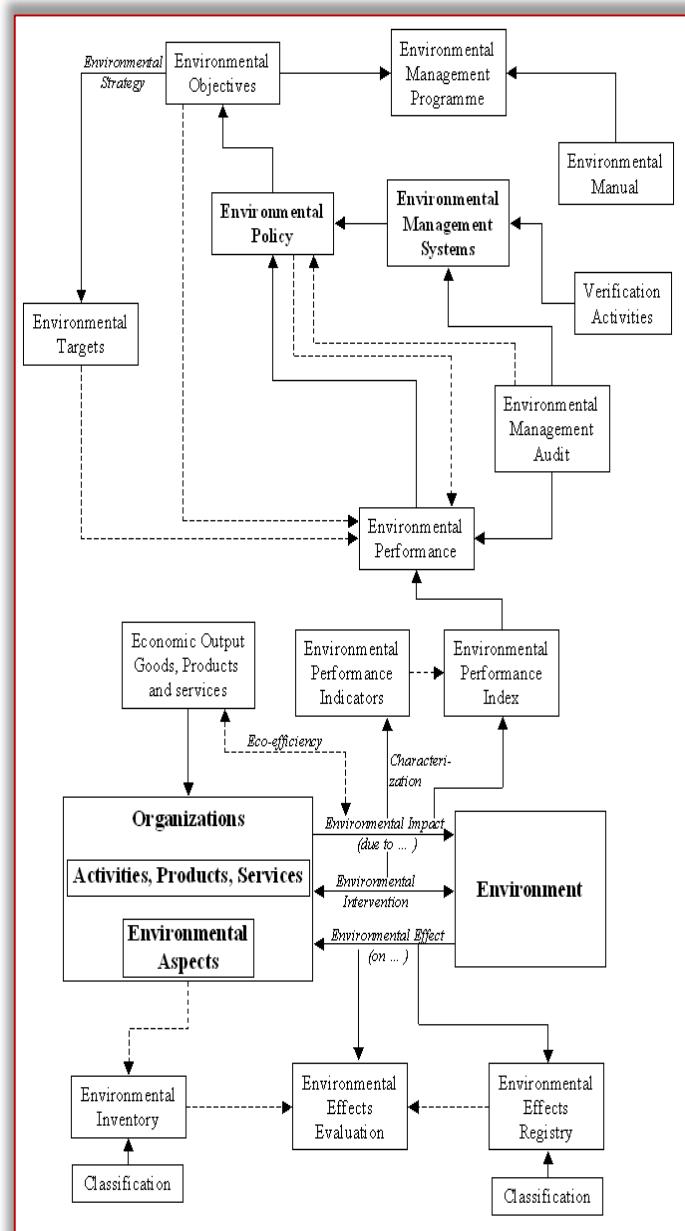


Figure 1. An illustrative Environmental Management System (EMS) flowchart [3]

Planning the environmental protection management systems within an organization includes the identification of environmental aspects and selection of the most significant of them.

The selection of the environmental aspects in certified organization that implements and operates an EMS depends on the available technology, experience, defined budget, defined mission and vision and, of course, the adopted environmental objectives mentioned within adopted environmental protection policy.

The selection and prioritization of the abovementioned environmental aspects in certified organization should be based on the application of the proven methodologies, such as risk - based approach to the environmental management issues, seeking rather the preventive activities that restorative ones [5].

RESULTS AND DISCUSSION

Process of identification and characterization of environmental aspects represents a set of procedures defined within the guidance documents [6]. Although there are tools for ranking and environmental aspects prioritization, still challenge is an unbiased choice of significant aspects (with significant impacts) meaning allocation of limited resources (financial, human, technical...) in order to increase environmental performance.

As a contemporary trend, perhaps still not sufficiently recognized, risk - based approach to environmental management could be very useful approach to the issue of aspects ranking and prioritization. Within this approach, the significance of the environmental aspects (and its impacts) is defined based on the total score of the mathematical product between the degree of impact significance and the likelihood of occurrence, according to the previously defined criteria.

While the environmental impacts assessment consists of:

- ☰ environmental basis,
- ☰ potential impacts prediction,
- ☰ mitigation measures, and
- ☰ monitoring,

risk - based approach to environmental management meaning consideration of:

- ☰ hazard identification (in sense of likelihood),
- ☰ exposure assessment (in sense of importance), and
- ☰ risk characterization.

As an effective tool for visualization and comprehensive review of scored aspects, environmental risk matrix could be used, as shown in figure 2.

Nevertheless, it is always should be bear in mind that risk - based approach to environmental management is related to environmental policy issue, objectives and environmental management plan dedicated to planned activities.

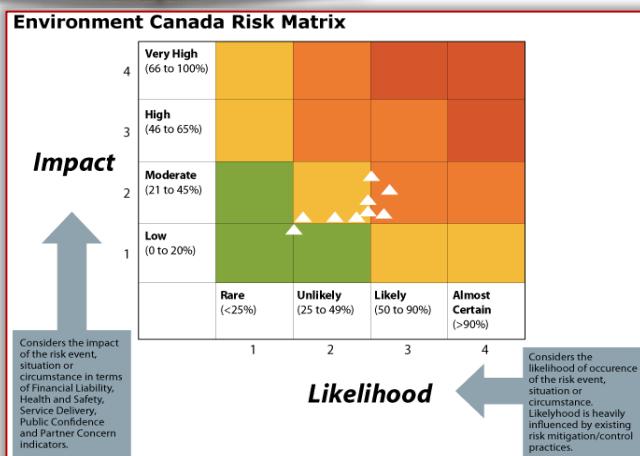


Figure 2. Environmental risk (harm) matrix, Canadian experience [8]

CONCLUSION

The basis for the preservation of environmental quality is existence of an effective environmental management system implemented at the all relevant activities and processes within organization. An objective selection of the most important environmental aspects means that the limited resources of organization are going to be allocated in the most positive manner (meaning greatest effects). With no less importance is a fact that effective environmental management systems actively contributes both to the environmental protection and corporate social responsibility of an organization.

Acknowledgments

The presented research is a part of the projects "Development of new information and communication technologies, based on advances mathematical methods, with applications in medicine, telecommunications, power systems, protection of natural heritage and education" (III 44006) and "Research and development of energy efficient and environment friendly polygeneration systems based on renewable energy sources utilization" (III 42006), under the auspices of the Ministry of Education, Science and Technological Development, Republic of Serbia.

Note

This paper is based on the paper presented at The VIth International Conference Industrial Engineering and Environmental Protection 2016 – IIZS 2016, organized by University of Novi Sad, Technical Faculty "Mihajlo Pupin" Zrenjanin, in Zrenjanin, SERBIA, October 13-14, 2016, referred here as [9].

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ISSN:2067-3809

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