MANAGEMENT OF ENVIRONMENTAL IMPACTS OF TRANSPORT

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Summary: The relevance of transport related environmental issues continues to grow in importance, because it is clear that current transportation patterns are environmentally unsustainable. The article identifies ways to set environmental management systems (EMS) as a framework for management of the environmental impacts associated with transport and reveals the wider perspective of EMS to respond the environmental issues that organizations are facing and to meet regulatory requirements.

Key words: transport, environment, management systems.

INTRODUCTION

The environmental sustainability and environmental regulations and legislation is placing increasing restrictions on transport activities. National and international policy in relation to transport, planning and the environment is aimed at elimination of negative impacts of transport (e.g. emissions, waste, water pollution, raw materials consumption, noise, etc.) in the interests of environmental benefits. Organizations have to respond by developing appropriate management systems enabling them to meet regulatory requirements based on the transport functions that the corporation put in place. Organizations must clearly understood and address a number of environmental issues to align transport facilities, and operations with environmental components, link environmental components with regulatory requirements, assess risks, impacts and responsibilities, undertake continuous monitoring and auditing, etc.

The transport infrastructures and patterns typically vary in terms of types of activities, volume of traffic, property, etc., therefore it is not possible to provide a generally valid model of environmental management. The environmental issues and the context of transport infrastructure of the organization are unique and the problems to be addressed are distinctively specific. Whatever the uniqueness of the organization is, there is a common set of procedures and specifications enabling an organization to reduce environmental impacts and increase its operating efficiency. These set of procedures, techniques and specifications are structured and formulated to meet global environmental objectives and generally are named as environmental management system (EMS).

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1. ENVIRONMENTAL MANAGEMENT SYSTEM

Corporate environmental management is a tool for reducing environmental harm and legal liability. EMS is an organizational system for controlling, managing and improving the environmental impact of operations and thus addresses all aspects of a company's environmental performance. EMS integrates with overall management activity and incorporates regulation drivers, which shape the targets for action in an EMS and processes that allows progress to be monitored and changes made where necessary in order to facilitate continual improvement. The implementation of EMS within organization represents a major opportunity to adopt and appropriately adjust transport initiatives (4).

Unlike various organization activities, which may have local or national impact, consequences of organization's activity which have impact on environment do not respect regional borders. Environmental protection, its implementation within single organizations and its integration in business strategies is therefore under a strong international pressure which is then reflected in the national environmentally-related legislation.

Generally, there are numerous environmental management systems. The choice of a system is specific to each transport enterprise in relation to the problem, risks, impacts and responsibilities identified and the geographical environment in which the enterprise must operate. There are currently two internationally recognized EMS schemes that can be externally verified. These are the international standard, ISO 14001, and the EU Eco-management and Audit Scheme (EMAS) (4). The ISO standard it is now an accepted core element of systems required by EMAS.

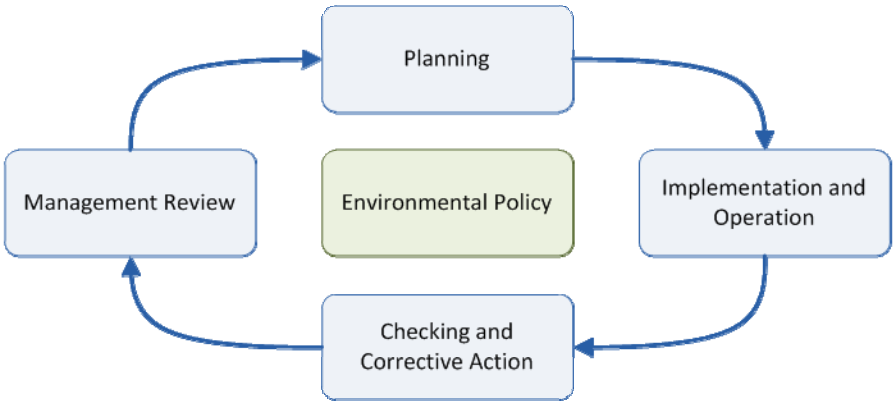
1.1 EMS based on ISO 14001 requirements

The series of ISO 14000 standards covers various environmental areas. Two standards in this series, ISO 14001 and ISO 14004, deal with the environmental management system. The ISO 14001 standard specifies requirements for the EMS to enable any organization to identify environmental aspects which it can control and influence and at the same time it will be able to pursue its business goals in such a way that it takes into consideration the environmental requirements which it has committed to fulfil. The ISO 14004 standard provides a guideline for creation, implementation, maintenance, and improvement of EMS and for its coordination with other management systems. Main principles of these standards are based on the following principles (4):

- They are general and may be applied in any business and production organization (enterprise) or in services.
- They represent a management tool for managing the organization and for fulfilling determined limits (restrictions) in the protection and improvement of its environmental impact and at the same time for satisfying customers' requirements and fulfilling their expectations.
- They mainly focus on the role of the top management when determining and pursuing environmental policy in the organization.
- They are focused on prevention by means of continuous measures.

- They are development-focused and create ways and mechanisms for improving the environmental care.
- They are based on the principle of voluntariness, but rules are binding after the standard is adopted.
- They have a system-wide effect and are supported by documented procedures.

The ISO 14001 standard is based on the PDCA model build on the environmental policy. Single stages of this model are performed in relation to the environmental policy which the standard marks as: planning; implementation and operation; checking and corrective action; management review.



Source: Author

Fig. 1 - EMS model in line with the ISO 14001 standard

1.2 EMS based on EMAS requirements

Since 1991, the Committee of European Communities was working on a regulation which would enable voluntary involvement of business entities of the industrial sector in the environmental management and Community audit. The result was a Council Regulation (CEC, 1993) No 1836/93 of 1993 which was a basis for the Environmental Management and Audit Scheme – EMAS. This Regulation became effective in 1995 and in 2001 it was replaced by the Regulation (EC) No 761/2001 which extended the registration possibility also to organizations of other sectors (not only the industrial one). Currently the Scheme is regulated by the Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organizations in the Environmental Management and Audit Scheme (EMAS). This Scheme is also called EMAS III.

EMAS represents a voluntary tool of environmental management for organizations wishing to assess and improve their environmental performance. EMAS is established in such a way as to help organizations increase their competitiveness mainly through better use of sources, compliance with environmental legislation, managing their significant direct and indirect environmental aspects and pursuing their targets and processes. Registration in the EMAS gives organizations a chance to prove to all stakeholders (customers, public, and

offices) that they assess, manage and decrease the environmental impact of their activities and products (3).

Contrary to technical standards of ISO 14001 which is independent standard towards which organizations may certify, EMAS has the EU legislative support in national regularizations in each Member State. So EMAS creates a possibility of a more normative approach to registered organizations.

Organizations registered in EMAS are obliged to have the EMS system implemented in line with regulations determined by the ISO 14001:2004 standard. The registered organizations are also required to deal with several additional issues beyond the framework of EN ISO 14001 requirements and to ensure that the following is performed (Fig.2):

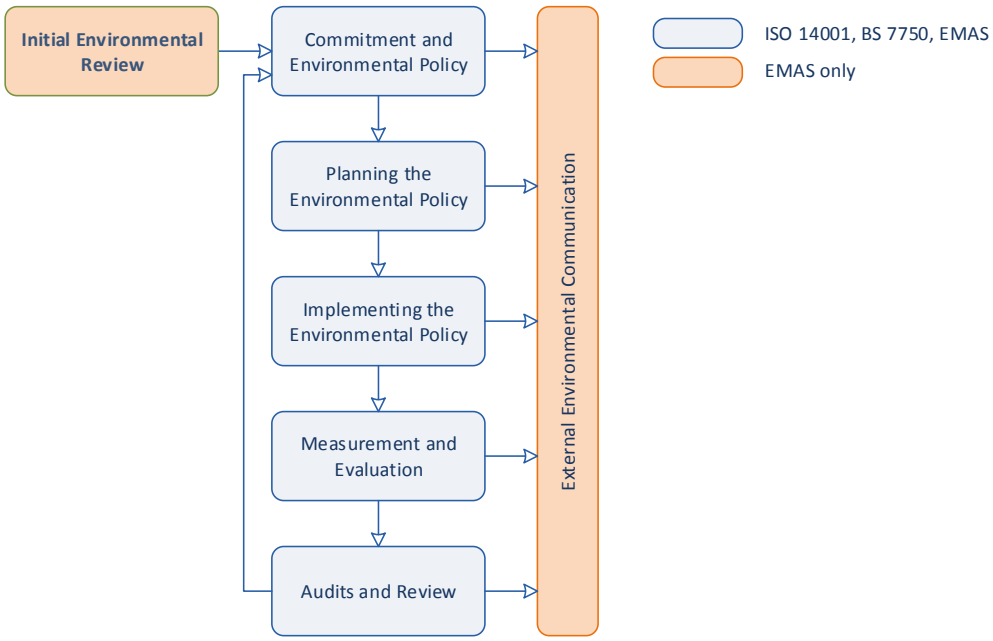
- Environmental review - Organizations have to make initial environmental review with the aim to determine and assess their environmental aspects and applicable legal requirements related to the environment.
- Legal compliance - Organizations have to prove that they have identified and they know consequences of all applicable legal requirements related to the environment and identified for the organization within the environmental review and that they have procedures implemented enabling them to continuously meet these requirements.
- Environmental performance - Organizations have to be able to prove that the management system and audit procedures focus on real environmental performance of the organization in view of direct and indirect aspects identified in the environmental review, and organizations also have to commit to a continuous improvement of their environmental performance.
- Environmental statement - Organizations have to publish an environmental statement certified by an accredited environmental auditor where they disclose their key data on the environmental policy, environmental aspects and environmental performance.
- Employee involvement - Organizations have to prove involvement of their employees in the process focused on continuous improvement of their environmental performance.

Source: Author

Fig. 2 - EMAS Scheme requirements

2. IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT SYSTEM

Implementation of EMS enables the organization to assure all stakeholders about compliance of activities, products and services of the organization with environmental regulations. In addition to legal compliance, the EMS implementation gives the organization a competitive advantage in international trade and is also an important tool for potential productivity improvement (6). The EMS build on ISO 14001 or EMAS requirements (Fig.3) includes organizational structure, planning, responsibilities, processes, procedures and resources for preparation, application, reviewing and maintenance of organization's environmental policy. In this way, it enables to achieve and systematically manage the required level of environmental performance.



Source: Author

Fig.3 - Modules of environmental management system

2.1 Initial environmental review

The initial review is made on the basis of a decision of the top management which will delegate formal authorities to a team which is carrying out the review. After the end of reviewing, this team will report the results directly to the top management which has authorized it. The review results may help the organization to learn about its strong and weak point in view of EMS implementation as well as the existing environmental risks and opportunities to improve the environmental performance. Discordance between requirements of the EMS standard and the real status of the organization points out to aspects where the organization should focus its effort.

This step is not explicitly required by the ISO 14001 standard, but it is appropriate to make this step as its results help formulate a suitable and real environmental policy.

2.2 Commitment and environmental policy

Environmental policy is a basic EMS document on which all system elements are based. Environmental policy is a statement of the organization about its intentions and principles, expressing the organization's commitment to fulfil the determined targets of environmental performance towards which the EMS efficiency will be assessed. The policy also expresses the organization's commitment to continuous improvement, preventive protection and ensuring compliance with current legislation and other important environmental regulations.

Environmental policy is unique for the given organization. It is a key tool for communication of the environmental vision and priorities to organization's employees as well as to external stakeholders. For this reason, it should be sufficiently clear, appropriate and available.

It is up to each organization what environmental priorities it will choose on the basis of the initial review; this choice should be clearly justified in the policy though. In order for the policy to be truly efficient, it must be regularly reviewed and adjusted in such a way that it reflects changing conditions and new information; at the same time, it must be involved in the overall policy of the organization.

2.3 Planning the environmental policy

In the planning stage, the organization identifies its interaction with environment through determining environmental aspects of its activities, products or services and assessments of related environmental impacts. Similarly, it also identifies relevant legal and other requirements, such as legal and administrative regulations, public notices, current technical standards and rules related to the identified environmental aspects. On the basis of identified environmental aspects and legal and other requirements, the organization will set its objectives and targets reflected in the tasks of the environmental management programs (4).

Defining environmental programs is the final stage of the planning phase which is directly based on the set objectives and targets. Environmental program is a description of the measures, responsibilities and means taken or envisaged to achieve environmental objectives and targets and the deadlines for achieving the environmental objectives and targets (EMAS). So the environmental program says what, by whom, how and when is to be done in order for the organization to achieve its set objectives and targets.

2.4 Implementation the environmental policy

From the point of view of time and effort, the stage of implementation and operation is the most demanding part of the EMS project. If the EMS implementation and operation is to be efficient, the organization must create necessary competencies and supporting mechanism through which it can fulfil requirements of its environmental policy which are reflected in the set objectives and targets. For the organization, the EMS implementation means to direct and adapt its staff, systems, processes, resources and structure in order to achieve its environmental targets.

2.5 Measurement and evaluation

Having implemented the EMS, it is important to control the system regularly. The aim of the control is to verify functionality and efficiency of EMS and also to verify efficiency of adopted measures. This can be generally achieved by measuring outcomes of organization's management related to its environmental aspects, and by assessing the compliance with legal and other regulatory requirements which the organization has committed itself to fulfil. Results of measuring and assessing are recorded by means of records which are available for verification by an internal or external auditor. On the basis of the records, it may be found out what EMS parts show non-compliance with requirements or stated environmental targets and objectives, and steps may be proposed which will enable to rectify the unwanted situation and to prevent such noncompliance from occurring in the future.

2.6 Audit and reviews

On the basis of outcomes from environmental audit and other sources of information, the top management may review the EMS. The aim of the review is to ensure permanent appropriateness, suitability and efficiency of the EMS. Management review is a crucial part of continuous improvement and therefore must contain assessment of the scope for improvement and the need for changes in the EMS including the environmental policy and environmental targets and objectives (2).

The review also assesses the extent of compliance or non-compliance with EMS requirements and the efficiency of performed corrective and preventive action. Management review should suggest corrective measures dealing with identified problems of the EMS design, intention and extent.

2.7 External environmental communication

The aim of organization's external environmental communication is to have an open dialogue with the public and other stakeholders including local communities and customers, as for the environmental impact of its activities, products and services, in order to identify worries of the public and of other stakeholders. It is a tool helping the organization to build trust among the stakeholders by means of disclosing a comprehensive set of information related to single EMS elements. The primary communication channel used therein are environmental reports or environmental statements.

A complex external environmental communication is only obligatory for the organization within the EMAS Scheme. EMAS requires a comprehensive environmental statement which is externally verified by an independent auditor.

CONCLUSION

Transport is an area that is often neglected when considering the environmental effects of business operations of the organization, therefore in the field of transport, appropriate measures should be adopted to reflect the objectives of sustainable environment. Adoption of an environmental management system favors the conformity and the adaptability of transport operations to environmental legislation and contributes to increasing environmental performance of an organization.

Environmental management systems help organizations identify and manage the environmental impacts of their transport operations, reduce these impacts and monitor the improvements gained. Although implementation of an EMS is not without cost, the main benefit resides in the reduction of legal costs that affect the profits and the productivity of the transport industry and reducing the environmental risks gives also undoubtedly a competitive advantage.

REFERENCES

(1) COMTOIS, C. *The geography of transport systems*. New Your: Jean-Paul Rodrigue, 2013. 416 s. ISBN 978-0-415-82254-1.
(2) CHAMBRE DE COMMERCE INTERNATIONLLE. *ICC quide to effective environmental auditing*. Paris, France: ICC Publishing. 1991
(3) *Gemi, Global Environmental Management Initiative*. [Online]. Last version 25.10. 2015. [Cited: 25 10 2015]. Available at: <http://www.gemi.org/resources/COS_107.pdf>
(4) KAMPOVÁ, K., LOVEČEK, T. *Managing security in organization*. Žilina: Žilinská univerzita, 2012. 187 s. ISBN 978-80-554-0615-2.
(5) KAMPOVÁ, K., LOVEČEK, T. *Riadenie bezpečnosti v organizácii*. In: Verejná správa a regi3onálny rozvoj: ekonómia a manažment. 2013. Bratislava. Vysoká škola ekonómie a manažmentu verejnej správy v Bratislave, 2013, s. 105-110. ISSN 1337-2955.
(6) KAMPOVÁ, K. *Implementácia štandardov v riadení bezpečnosti podniku*. In: Manažment. Teória, výučba a prax. 2010. Liptovský Mikuláš. Akadémia ozbrojených síl gen. M. R. Štefánika v Liptovskom Mikuláši. 2010. S. 139-145. ISBN 978-80-8040-404-8.
(7) ISO 14001:2004. *Environmental management systems - requirements with guidance for Standardization.*