

8. SIGNIFICANCE OF ENVIRONMENTAL STATEMENT EMAS

Keywords

EMAS Regulation, environmental statement, relationship: organisation- environmental protection

Introduction

At the summit in Lisbon (2000) the Council of the European Union decided that the EU strategic objective shall transform the European Union into more dynamic, competitive and knowledge-based society by 2010. To achieve this goal the EU has to engage actively in implementing economic, social and environmental tasks. It means, from a perspective of environmental protection, that degradation of the environment has to be independent of the economic growth and it's necessary to implement sustainable production and consumption as well as natural resource protection and sustainable resource management. Growing ecological awareness in society is reflected in a growing importance of environmental protection in the economy. The awareness means also a pressure put on business entities and the authority as society forces entrepreneurs to implement ec-friendly technologies and the administration to supervise entrepreneurs. Customers are more often interested in goods and services conforming with the environmental standards that are higher and higher, moreover, the authority is continuously toughening these requirements. Hence, entrepreneurs are forced to look for new solutions to conform with standards being continuously toughen and the administration has to look for effective methods to enforce them. The environmental management system (EMS) set up in the 1990's is the best solution to the problems of both entrepreneurs and the authority. Thanks to it organizations are able to work on a coherent strategy to protect the environment and the administration can partly assign a task of conforming with requirements to engaged organizations¹.

Instruments implemented voluntarily by organizations replaced to some extent the traditional system of bans and writs set up in the 1980's what was reflected in the documents issued by the EU, namely in the 5th Environmental Action Programme „Towards Sustainability” published in 1993. In the same year the European Parliament and the Council of the European Union adopted the first EMAS (Eco-Management and Audit Scheme) Regulation that entered into force in April 1995 and obliged the Member States to establish the administrative infrastructure enabling organisations to register under EMAS. Since 2001 EMAS has been open to all economic sectors including public and private services (Regulation (EC) No 761/2001 of the European Parliament and the Council of 19 March 2001).

¹ Under ISO 14001 and EMAS Regulation „organisation” means a company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administrations.

To register under this scheme an organisation must implement an environmental management system meeting the EMAS requirements, **publish an environmental statement** and submit both elements to independent verification.

The environmental statement EMAS

The Regulation laid down the procedures for implementing an additional tool for external communication- an environmental statement. EMAS is established to evaluate and improve organisation's environmental performance and provide the public and other interested parties with relevant information. Publishing the environmental statement helps the organisation to establish a positive image among its customers, suppliers, neighbours, subcontractors, and employees as well as becomes a part of an open dialog with the public and other interested parties. Environmental statement includes general data on organisation and its environmental performance, it should pay particular attention to the results achieved by the organisation against its environmental objectives and targets and the requirement of continuous improvement of the environmental performance. The environmental statements shall be publicly available.

Environmental statement shall be:

- validated by accredited environmental verifier,
- made publicly available after having been validated,
- published with regard to the audit cycle, it means, at least every three years; the organisation shall update the information on a yearly basis.

Producing the environmental statement can be divided into three main phases:

- Phase 1 – planning,
- Phase 2 – structure and content,
- Phase 3 – publication and public availability.

The „planning” phase includes allocation of tasks and responsibility for their implementation; setting up a framework, checking information and data already available such as: environmental policy, schemes of material and energy flow, emission registers and reports on accidents, environmental programme and objectives, audit results; moreover a target group is chosen (i.e. key groups for the organisation are determined: administration, customers and suppliers, employees, neighbours or the local community, financial institutions, the media, or other interested parties).

While implementing the phase „structure and content” it should be borne in mind that the environmental statement is a publicly available document, therefore it should be clear and concise. Environmental statements don't need to be long documents, however, under Annex III point 3.2., the minimum requirements for the information shall be as follows²:

- a clear and unambiguous description of the organization registering under EMAS and a summary of its activities, products and services and its relationship to any parent organisation,
- the environmental policy and a brief description of the environmental management system of the organisation,
- a description of the significant direct and indirect environmental aspects which results in significant environmental impacts of the organisation and an explanation of the nature of the impacts as related to these aspects,
- a description of the environmental objectives and targets in relation to the significant environmental aspects and impacts,

² The Council of the European Union has published the Guidance for the implementation of the EMAS Regulation that assists organisations on the appropriate entity for registration to EMAS.

- a summary of the data available on the performance of the organisation against its environmental objectives and targets with respect to its significant environmental impacts,
- other factors regarding environmental performance including performance against legal provisions with respect to their significant environmental impacts,
- the name and accreditation number of the environmental verifier and the date of validation.

In order to implement Phase 3 properly, the ways of publication and making documents publicly available as well as using them effectively in an open dialog and collaboration with the target groups have to be considered carefully already in Phase 1 (“planning”). Therefore while preparing to a publication of the environmental statement the following issues have to be taken into account:

- How the information shall be disclosed to the target groups?
- Who is responsible for publishing environmental statement and making it publicly available?
- How many copies shall be printed?
- Who is responsible for answering all questions concerning environmental protection and how much time shall be spent on this task?

Although Regulation requires environmental information to be made available in printed form, organisations are encouraged to use all methods available for making the environmental statement publicly available. Documents in electronic format, such as web pages, provide a cost-effective way of making information available to a large number of people.

Regulation states that the information must be available in a consolidated printed version at the organisation’s first registration and then every three years. In addition the organisation must update any changes in the information annually and they shall be validated annually as well. It’s important to take the feedback into account (questions, suggestions, comments) received as the answer to the environmental statement in order to ensure that the environmental statement provides the target groups with relevant information.

Example

The Regulation doesn’t specify a structure for the environmental statement or the order in which items should be presented, that is a matter for the organization to determine provided that the requirements are met. While preparing the environmental statement the following structure may be used and the issues may be described:

An example of the structure and content of the environmental statement:

1. General information- organisation’s name, its location, number of employees, implemented processes, products and services.
2. The environmental policy
 - a) The environmental policy
 - b) An introduction letter signed by the Chief Executive Officer (CEO) what increases credibility of the statement. The introduction should concern the environmental policy, key elements of the EMS system and a summary of the main objectives. It’s worth mentioning if the organisation was awarded any environmental reward.
 - c) The history of environmental performance- describing environmental actions already taken.
3. Environmental objective and programme- presenting environmental objectives and targets set by the organisation. They should be given in numbers where possible. Moreover, the environmental programme shall cover environmental priorities and intended time-frames in order to enhance credibility of the environmental statement.

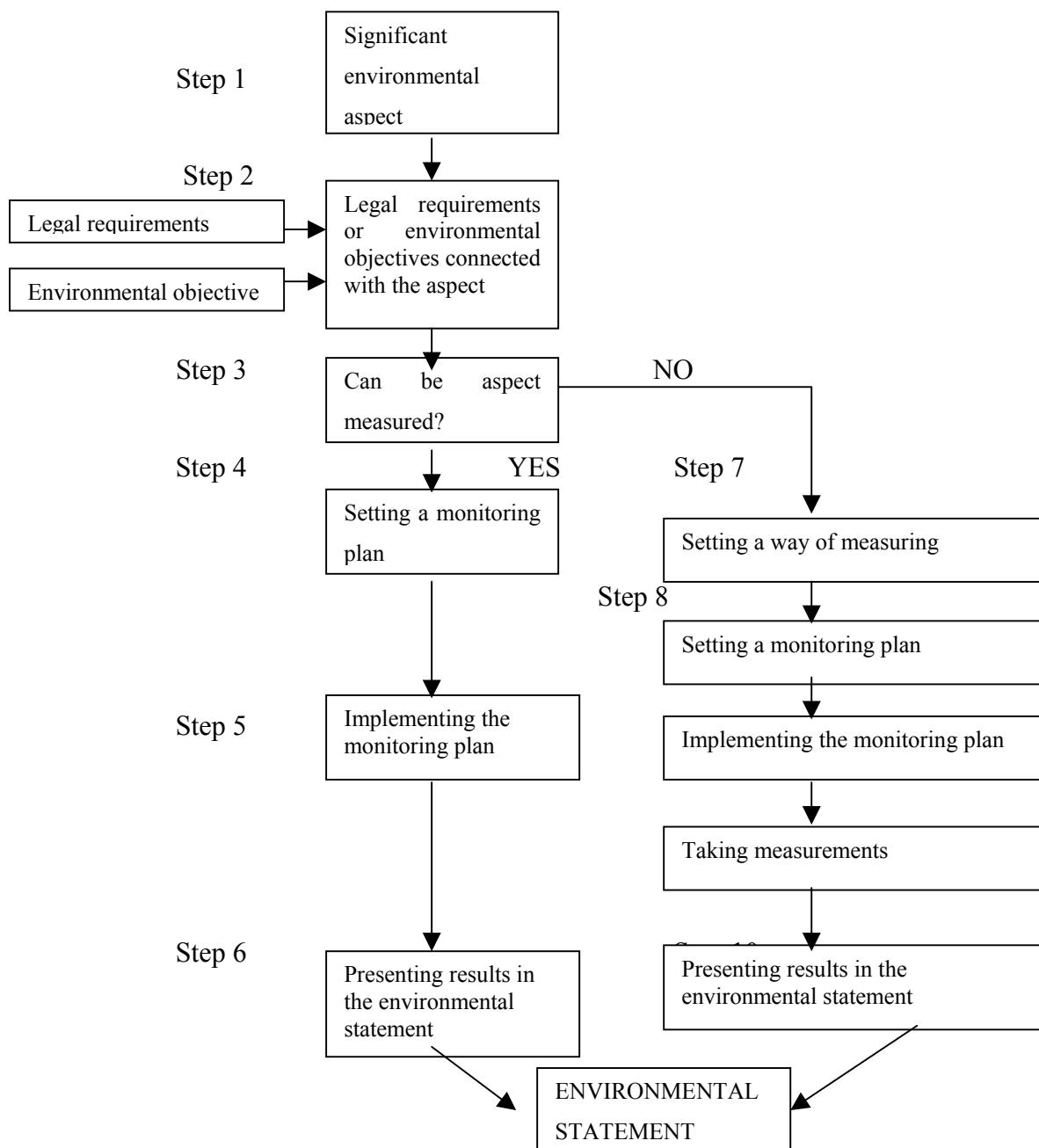
4. Environmental management system
 - a) A framework of the environmental management system
 - b) The organisation structure and allocation of responsibility for EMS provide better understanding of the responsibilities for the environmental management system by the interested parties and their staff.
5. The most significant environmental issues
 - a) Significant environmental aspects which result in significant environmental impacts, the information shall be provided in respect to processes, products and services. It's recommended to use various kinds of diagrams, e.g. a process diagram with marked environmental aspects.
 - b) Scope of acquired data and valuation criteria- describing the issues taken into account by the data and methodology of acquiring data (measurement or estimated data?)
6. Environmental valuation of the object and production – a detailed description of the environmental impact
 - a) Resource use – amount of used raw materials, auxiliary materials. Additionally a share of renewable and nonrenewable raw materials as well as use of hazardous materials can be given.
 - b) Energy consumption – types and amount of consumed energy, area of consumption (production processes, heating, lighting, etc.).
 - c) Water consumption – types and amount of consumed water and the most important area of consumption.
 - d) Buildings, equipment, land – information on land contamination, heat insulation of buildings, implementing new technological solutions.
 - e) Waste - types and amount of waste, area where it's generated, waste management and reduction methods.
 - f) Emissions to air, noise and odour - types and amount of emission to air, noise and odour.
 - g) Sewage - types and amount of sewage, ways of discharge, data on sewage burden.
 - h) Risks of environmental accidents and impacts arising – information on failures, the reasons for such situations and actions taken. It's also recommended to present conclusions drawn from failures as well as preventing actions aim to avoid such failures in the future.
 - i) Transport issues- means of transport, consumption and emissions arising.
 - j) Other environmental issues – protection of the nature, fauna, flora etc.
7. Environmental features of products and services
 - a) Products and services – proportion of used materials and their impact on the environment, environmental criteria for products and services, information on eco-labels if products have them.
 - b) Lifecycle assessment of the products – durability of product, use and waste recovery (take-back schemes, recycling).
 - c) Development of products and services- scope of environmental criteria take into account in R&D works.
8. Influence of implementing EMS on revenues and competitiveness- analysis of costs and profits from EMS implementing, information on benefits gained from implementing eco-friendly products and reasons for potential failure.
9. Communication with target groups- presenting opinions of employees, business partners and other interested parties on the environmental operations, asking for feedback. Moreover, giving contact persons is necessary.
10. Conclusions– a statement of the environmental verifier, a publication date of the next environmental statement, glossary of technical terms.

Organisations often face problems with acquiring reliable data and environmental indicators that reflect the way significant environmental aspects and their impacts are controlled by organisations.

Organisation may use the scheme below for each identified significant environmental aspect. Such an approach shall ensure that information provided by the environmental statement shall regard:

- significant environmental aspects,
- legal requirements and objectives set by the organisation,
- methods used in monitoring,
- calculations and assumptions used in presentation of numerical values.

Chart 1. Scheme for identification of significant environmental aspect to include information in the environmental statement.



Source: Wspólnotowy System Ekozarządzania i Audytu EMAS, Poradnik dla Organizacji, Kraków 2005.

Step 1:

The main goal of EMS is to control all significant environmental aspects. The preliminary environmental review shall identify all of them.

Example:

NO_x emission was identified as a significant environmental aspect, it resulted from the preliminary EMS and the ongoing review process examined by the organisation.

Step 2:

Definition of the significant criteria by the organisation, taking into account Community legislation.

Example:

The organisation releases NO_x to air therefore it shall comply with the following requirements:

- resulting from the emission permit: maximum allowable concentration amounts to **10 mg/m³**,
- resulting from the environmental programme: NO_x emission per tonne of production shall be reduced by 10%.

Step 3

Organisation has to determine whether or not complying to each requirement can be measured and methodology shall be used.

There is a difference between producing information concerning:

- requirements or objectives which implementing can be shown by results of direct measurements, and
- requirements of objectives which implementing can't be shown by results of direct measurements. It results in taking many various measurements and calculations.

Example:

With regard to NO_x emission and the environmental requirements, monitoring can be conducted in the following way:

- maximum allowable concentration (10 mg/m³) can be measured at the outlet,
- 10% reduction of NO_x emission per tonne of production can be shown by two separate measurements and calculations.

Step 4

Appropriate monitoring methods shall be determined for each requirement which can be met by taking indirect measurements. Preparing such operations shall cover the answers to the following questions:

- Who is responsible for taking measurements?
- What equipment is used?
- How often measurements are taken?
- How the results are documented?
- How often equipment is calibrated?

The following operations can serve as examples of direct monitoring:

- monitoring of the quality of emission released to air and water,
- monitoring of emission and amount of generated waste,
- monitoring of environmental noise,
- monitoring of maximum amount of hazardous substances stored in the object.

Example:

Maximum allowable concentration (10 mg/m³) shall be measured at the outlet, two measuring devices are needed as there are two outlets. The following monitoring plan was prepared:

- head of technical department is responsible for taking measurements,
- equipment used: automatic measuring devices fitted in outlets,
- measurement frequency: continuous,
- recording information: electronic in the data management system.

Step 5

To comply with each requirement, monitoring shall be carried out under the monitoring plan. A particular attention shall be paid to the following:

- proper training and awareness of the personnel carrying out monitoring,
- data management (in case of the electronic systems backup shall be made regularly),
- used procedures when measurements don't comply with requirements.

Example:

Maximum allowable concentration (10 mg/m³) shall be measured under the monitoring plan. A particular attention shall be paid to the following:

- proper training and awareness of the technical department personnel,
- data management: backup shall be made weekly, a test checking if implementing a backup to the system is possible shall be made every six months,
- technical department personnel shall be trained in actions taken when measurements don't comply with requirements of NO_x emission.

Step 6

All data shall be analysed and presented to check compliance with the requirements. For each significant environmental aspect shall be presented at least:

- legal requirements (e.g. permits) or those resulting from the objectives set by the organisation (under the provisions of the environmental programme),
- measurement methodology,
- any non-conformances with the monitoring plan,
- results obtained last year,
- results from the previous years.

Example:

Organisation decided that the results of monitoring of the maximum allowable NO_x concentration (10 mg/m³) will be given in a chart which will show the highest values of the concentration within a month and maximum allowable concentration. Organisation shall provide information on measurement methodology as well.

The next steps refer only to some environmental aspects that can't be controlled directly.

Step 7

To comply with each requirement that needs to some calculations based on the results, shall be identified the following:

- methodology of calculations,
- initial data,
- the way of acquiring data.

Example:

Step 3 proved that NO_x emission per tonne can't be controlled directly but it will be calculated on the basis of other measurements.

Firstly, the data required to calculate annual NO_x emission will be needed. The method to calculate total NO_x emission is based on taking measurement of both concentration and flow velocity at outlets. Hence, except for the existing system of NO_x measurement at outlets (cf. steps 4 – 6), it's necessary to measure flow velocity at outlets (m³/h). The mean NO_x concentration for an hour shall be calculated and the value will be multiplied by flow velocity for an hour resulting in absolute value of hourly NO_x concentration. The hourly values shall be summed as weekly and annual burden.

Secondly, the data required to calculate annual production (tonnes) will be needed. Production department conducts a production register (tonnes/day). Hence, annual size of production can be easily calculated, annual NO_x emission per tonnes of production can be calculated on the basis of annual emission and production.

Step 8

In order to obtain reliable results, the organisation shall prepare the monitoring plan including:

- allocation of responsibility for taking measurements,
- used equipment,
- measurement frequency,
- documentation of results,
- frequency of equipment calibration.

Example:

To calculate annual NO_x emission per tonne, three monitoring operations are necessary to be carried out:

- NO_x concentration,
- flow velocity in outlets,
- size of production in tones.

In this example, NO_x concentration is measured as in steps 4-6.

In order to measure flow velocity (m³/h) additional tasks are necessary to be introduced to the monitoring plan:

- head of technical department is responsible for measuring flow velocity,
- equipment used: automatic flow velocity meters fitted in outlets,
- measurement frequency: continuous,
- recording information: electronic in the data management system.

Data management system shall be altered to enable calculating:

- mean NO_x concentration for each hour,
- total hour flow velocity (m³),
- by multiplying the two values above: absolute value of hourly NO_x concentration,
- by summing these values within a week gives: absolute value of weekly NO_x concentration.

Acquiring weekly data by a production department shall be included in the monitoring plan and the data shall be retained in the data management system.

Eventually, department of environmental protection shall make weekly reports on NO_x emission per tonne of production. The results shall be summed in order to receive annual NO_x emission per tonne of production.

Step 9 (as step 5)

To comply with each requirement, monitoring shall be carried out under the monitoring plan. A particular attention shall be paid to the following:

- proper training and awareness of the personnel,
- data management (in case of the electronic systems backup shall be made regularly),
- used procedures when measurements don't comply with requirements.

Example:

In order to calculate annual NO_x concentration per tonne of production, three monitoring operations are necessary to be carried out:

- NO_x concentration,
- flow velocity in outlets,
- size of production in tones.

A particular attention shall be paid to the following:

- a proper training and awareness of the technical and production personnel,
- data management – backups made weekly; a test checking if implementing a backup to the system is possible shall be made every six months,
- personnel of environmental protection department shall be trained to take appropriate actions when weekly data indicates failure of the environmental objective. In such a case, personnel is obliged to inform management..

Step 10

To comply with each requirement that needs to make some calculations based on the indirect measurements, shall be used monitoring results.

When the data is incomplete, it should be explained to what extent it had an impact on the total results, e.g. the equipment didn't work for one month, the organisation shall explain measures taken in such a situation. The verifier shall verify if the assumptions are correct.

Example:

While step 3 it was decided that NO_x emission per tonnes of production shall be calculated on the basis of:

- NO_x concentration,
- flow velocity in outlets,
- size of production in tones.

Installed data management system provides the data on:

- absolute value of weekly NO_x emission,
- weekly production (tones).

The values above can be easily summed by environmental protection department in order to receive annual burden per tonne of production.

Conclusion

The Sixth Environment Action Programme „Our future, our choice” adopted in 2002 emphasizes the role of EMAS as the tool helping organisations to comply with the environmental protection regulations as well as to change production and consumption patterns to more sustainable. One of the priorities is to encourage organisations to register under EMAS i.e. **to publish detailed and verified information on the environmental impact.**

EMAS doesn't replace any existing EU or national environmental regulations or technical standards as well as it doesn't exempt from complying with all environmental regulations or standards. Its main assumption is to reward organisations that voluntarily adopt a pro-active approach in this field beyond compliance with all relevant regulatory requirements regarding the environment.

Comprehension check

1. Using the scheme of acquiring data to the environmental statement analyse acquiring the data in any organisation that implemented EMS under ISO 14001 or EMAS. Pay particular attention to the relationship: organisation- the environment before the organisation started implementing EMS, identified significant environmental aspects, the way monitoring is used in the organisation.
2. Having knowledge on the main components of the environmental statement analyse the environmental statement of a selected organisation³. Answer the following questions: which components did the statement lack? Justify your answer. Which parts of the statement were too detailed or too general? What means were used by the organisation to make the environmental statement publicly available? In your opinion, is the statement prepared according to the needs of the target groups? Was the presentation clear and readable allowing comparison with other organisation of this sector?

Recommended readings

- The EMAS Regulation
- Annex III to the EMAS Regulation
- Ensthaler J. u.a, Umweltauditgesetz EG – Öko - Audit Verordnung, E. Schmidt Verlag, Berlin 1996.
- Frobel M., Libra J., Das Checklistensystem zur EG - Öko- Audit - Verordnung. Eine Arbeitshilfe mit Erläuterung Praxisbeispielen, Verlag Campus, Frankfurt/ New York 1997.
- Gimber J., Erfahrungsbericht über ein erfolgreiches Öko Audit der Daimler Benz AG im Werk Wörth, w: Demokratie im Spannungsfeld zwischen Ökonomie und Ökologie, F. Mary (Hg.), Verlag Petra Knecht, Landau 2000.
- Keller B., Unternehmensexterne ökologische Berichterstattung. Entwicklung einer Konzeption mit Ansatzpunkten zur Prüfung, Verlag VF, München 1996.
- Krinn H., Meinholz H., Einführung eines Umweltmanagementsystems in kleiner und mittleren Unternehmen, Verlag Springer, Berlin, Heidelberg, New York 1997.
- Matuszak - Flejszman A., Systemy zarządzania środowiskowego ISO 14001 i EMAS, „Problemy Jakości” 1998, No. 10.
- Pfriem R., Umweltpolitik und Umweltleitlinien, w: Die EG - Öko – Audit - Verordnung, K. Fichter, Verlag C. Hanser, München - Wien 1995
- Raporty środowiskowe Kostrzyn Paper S.A.
- Raporty środowiskowe Elektrownia Opole

³ You can also use the environmental statements available at: www.arcticpaper.com (Kostrzyn Paper S.A.); www.elopole.com.pl/download/dokumenty/deklaracja_srodowiskowa.pdf (Powerplant Opole).