

Introduction to Environmental Management Systems

[Best Practice]

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Introduction to Environmental Management Systems for Air Navigation Service Providers

1 Foreword

Increasingly, CANSO is observing a greater desire for Air Navigation Service Providers (ANSPs) to implement global systems that assist them to manage the impact their business and operations have on the environment.

Recognising the need to support ANSPs to manage the environmental expectations placed upon them, CANSO has developed this Introduction to Environmental Management Systems as a preliminary information package for ANSPs seeking guidance on what is required to establish an industry recognised Environmental Management System (EMS).

CANSO acknowledges that many of its members are already advanced in their ability to accurately manage environmental issues, however we recognise that further information is required if all members are to create consistent management practices. This document is designed to explain the benefits, the key elements, and best practice when seeking to implement an EMS.

The information compiled in this document has been sourced through questionnaires to CANSO members and developed through wide industry review and input from the CANSO Environment Workgroup.

For more information please go to:
www.canso.org/environment.

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The Benefits of an EMS

An EMS ensures that an organisation has identified, and is managing, its environmental risks in a systematic manner. It facilitates:

1. Reduced impact on the environment;
2. Sound (effective and efficient) environmental performance;
3. Continuous improvement;
4. Meeting legal and other environmental obligations; and
5. A due diligence approach to environmental management for the organisation and its staff.

By adopting a systematic and due diligent approach to environmental management, ANSPs are able to improve their environmental performance, reduce business risk and demonstrate improved environmental performance to stakeholders.

Used in consultation with stakeholders an EMS can help to focus priorities and avoid wasted effort leading to reduced operational costs. Furthermore, an EMS can secure growth, support airspace changes, avoid constraints, and help improve quality of life for people around airports.

Other benefits can stem from the cost savings due to better planning and identification of deficiencies, enhancing awareness and skills among employees, plus reduced liability and improved compliance which in turn leads to an improved public image and higher customer trust.

Establishing an EMS does need an increased investment in staff time and potentially assistance from external consultants. However the long term benefits should outweigh the costs of implementing an effective EMS.

An EMS helps ANSPs effectively:

- Identify and assess environmental issues and risks,
- Develop and implement appropriate management for risks (risk treatment, operational control, emergency planning, incident reporting and associated corrective and preventative actions etc),
- Document risk identification, assessment and management so that due diligence can be demonstrated,
- Reduce the use of resources and provide a systematic focus on priorities (cost-effectiveness).



3 What is an Environmental Management System?

All organisations have some impact on the environment. An EMS is a structured system designed to help an organisation to reduce these impacts through targeted continuous improvement in its environmental management, leading to improvements in its environmental performance, while delivering bottom line benefits through reduced operating costs.

An EMS is the part of an organisation's overall management system which enables it to manage its environmental risks, achieve and control the expected level of environmental performance and provide a structured process for achievement of continual improvement. An EMS supports environmental protection, biodiversity conservation, ecologically sustainable development and resource sustainability.

An EMS may be certified, registered or incorporated into existing management systems and documentation, and can be used to enhance rather than replace existing systems. In many cases much of an EMS can be provided by existing management systems with minimal costs for adjustment.

By way of European example, an EMS can be certified by the ISO 14001 international standard or registered under the EU Eco-Management and Audit Scheme (EMAS ¹) statute by an auditor in certification of standard or an approved EMAS controller.

4 What is an EMS used for?

The environmental management system can be used as an aid to:

- Identify and reduce the operation's impact on the environment,
- Introduce controlling routines,
- Establish tangible environmental goals for improvement,
- Introduce an environmental management programme in order to achieve environmental goals,
- See that environmental activities are functioning,
- Continually assess and evaluate environmental activities,
- Plan, manage and act using information gained from assessments and evaluations,
- Create the basis of reliable communication surrounding environmental activities,
- Improve negotiation on proposed environmental constraints.



¹ http://ec.europa.eu/environment/emas/index_en.htm

5 Environment Management Systems and the ANSP

An EMS is a management tool that can be used by ANSPs to reduce the environmental impact of their operations and improve their environmental performance. An EMS can assist an ANSP manage the direct impact of its operations (e.g. asset management such as fuel storage facilities) and both the direct and indirect impacts of third parties – such as airlines and airports – that can be affected by ANSP decisions and service provisions (e.g. changes to aircraft impacts from airspace changes).

ANSPs such as Luftfartsverket in Sweden (www.lfv.se) and Airservices Australia (www.airservicesaustralia.com) are progressively implementing an EMS aligned to international standards such as ISO 14001 as an effective tool to facilitate the management of CNS/ATM environmental issues. However, as highlighted above, environmental management can also be part of an overall management system and need not specifically be implemented separate to other management systems.

An organisation that already has, for example, an ISO 9001 Quality Management System, can integrate an EMS as many common elements are shared. This also applies for the Greenhouse Gas Accounting Standard, ISO 14064 and other examples. The new ISO 9004:2009 “Managing for sustained success of an organisation” also refers to environmental management.

Any EMS can be used, but CANSO believes that systems should be in line with recommended international standards, and at minimum it should assist the ANSP consider the following:

- What is being done?
- How does this effect the environment?
- What is specified in the legislation and regulations?
- What improvements can be made?

The day to day operational, legislative and regulatory requirements imposed on ANSPs vary significantly. However an EMS typically incorporates all elements of an ANSP’s environmental management impacts and practices, including:

- Aircraft emissions on climate change and local air quality;
- Aircraft noise on people living near airports;
- On-ground facilities and operations (fuel storage, fire fighting training etc)– pollution, risks to threatened species etc, and
- General office operations in terms of energy and resource usage and waste.

If the activities that cause these impacts are well managed:

Their impact on the environment will be minimised. For example:

- Improvements to domestic and international air routes, implementation of RVSM (Reduced Vertical Separation Minima), User Preferred Routes and air traffic flow management technology can reduce aircraft fuel burn, resulting in more efficient operations, saving millions of dollars and reducing carbon dioxide emissions;
 - The risk of fuel spill is reduced;
 - Threatened species are conserved on land;
 - Energy usage is reduced and as a consequence greenhouse gas savings can be achieved in buildings;
 - Reduced resource usage through the implementation of policies such as the use of double-sided printing and recycling projects.
- Business risks will be reduced. For example:
- There will be less risk of non-compliance with environmental legal requirements, which can result in prosecution, large fines and even jail sentences;
 - The cost of operations is likely to decrease – with less clean up costs, fines and the time spent trying to fix the problem after it has occurred;
 - Being seen to be “doing the right thing” can reduce public concern and make an ANSP’s job easier (eg it can make the implementation of changes to air routes simpler, reducing the time required in public consultation).

Typical Environmental Impacts for an ANSP may include, but are not restricted to:

Environmental Impacts		
Aircraft Emissions	Aircraft Noise	On-ground Facilities & Operations
<p>Impact Aircraft emissions contribute to climate change as they:</p> <ul style="list-style-type: none"> - emit greenhouse gases (carbon dioxide) - trigger the formation of contrails (water vapour) & cloud formation <p>Aircraft emissions also impact on the local air quality.</p>	<p>Impact Aircraft noise, particularly at night, can create strong feelings among those living near airports and under flight paths. Air route structures and air traffic services (ATS) procedures influence the location of the aircraft and hence the impact of the noise.</p>	<p>Impact Activities and facilities that may create environmental risks include, fuel storage; waste disposal; building maintenance and construction; resource use – electricity usage, water usage, and land management.</p>
<p>Management CANSO has estimated that a 4% increase in ATM efficiency is achievable by 2050 as air traffic quadruples, delivering a savings of 79 million tons of CO₂ per year.</p> <p>Systems and standards that minimise fuel use include:</p> <ul style="list-style-type: none"> - User Preferred Routes - Tactical Sequencing - Reduced Vertical - Separation Minima - Constant Descent Approaches - Tailored Arrivals - Automatic Dependent Surveillance Broadcast 	<p>Management Management programs that an ANSP has to minimise the impact of aircraft noise include:</p> <ul style="list-style-type: none"> - Compliance with Noise Abatement Procedures - Noise and Flight Path Monitoring Systems; - Noise Complaints response service; - Environmental impact assessment of changes to proposed air traffic services practices; - Aircraft Noise Modelling; - Incorporation of environmental considerations in air route, airspace and procedures design eg Noise Abatement Procedures; 	<p>Management Management of these risks include:</p> <ul style="list-style-type: none"> - Environmental controls incorporated in work procedures; - Environmental Emergency Plans; - Risk assessment of all activities that may impact on the environment; - Proposed Risk treatment for all significant environmental risks; - Training and Awareness programs; - Assigned responsibility; - Environmental assessment of changes to operations that may substantially impact on the environment; - Auditing implementation of the Environmental Management System and compliance with procedures.

An ANSP's EMS in Practice - Interview with

Ken Owen, Senior Environmental Specialist,

Airservices Australia

1. Tell us a bit more about the Airservices EMS

Airservices Australia has implemented an ISO 14001-aligned EMS. The EMS is simply a management process that identifies our environmental issues and generates management programs to deal with those problems. It also ensures that any non-compliance is reported and that we can continuously improve our environmental performance.

Environmental awareness across the entire organisation is critical to Airservices Australia's success in business and as an environmentally responsible air navigation service provider. It is our individual responsibility to ensure that for our whole business our environmental performance is second to none. This is not just an environmental objective, but it is also an important business objective.

2. When was it implemented, how long did it take, and how much effort was involved?

Airservices Australia began implementing an ISO 14001 aligned EMS in April 1998. The development of the EMS to this point had involved two staff members and took about 9 months to develop. While there were two staff members dedicated to this project it also involved a number of people from other areas of the organisation e.g. Aviation rescue and fire fighting (ARFF), facilities management, air traffic control (ATC) and property management in workshops to identify issues and develop a system that would meet the organisation's business needs.

The development and implementation of the EMS was based on a risk management approach, whereby the organisation identified the highest environmental and environmental business risks. As a result the EMS was first implemented to manage changes to ATC practices and procedures including airspace and flight path changes where aircraft noise was the major concern. Existing on-ground activities such as ARFF training facilities,

fuel storage, hazardous material management, etc were then addressed. The third stage was the development of the EMS to address changes to on-ground facilities and activities which addresses activities such as new surveillance and navigation facilities, fire stations etc.

In 2004 Airservices had its first site, Gellibrand Hill Radar near Melbourne Airport, certified to ISO14001. A second site, our ARFF, navigation aid sites and facilities management at Gold Coast Airport was also certified to ISO14001 in 2007.

3. How is the EMS implemented and monitored?

Airservices' EMS applies to the organisation's operations nationally (some 1,000 sites at 600 different locations). It is centrally managed but implemented locally. This has required extensive training of staff during the implementation of the EMS. Ongoing training is essential to ensure the system continues to be used effectively. This has been a challenge both due to the number of staff that require training and the geographically dispersed nature of Airservices operations. To facilitate the effective implementation of the EMS, Airservices developed a bespoke computer application, called Airservices Risk Management System (ARMS). The ARMS risk management tool provides risk identification and assessment; current risk controls; proposed risk treatment including objectives & targets; emergency plans and incidents reporting functions; and non-conformance reporting. In this way ARMS assists the EMS to comply with the requirements of both relevant legislation and the ISO 140001 standard.

4. What challenges has your organisation faced?

The biggest challenge faced has been the training of staff and changing the culture of the organisation. A priority for effective EMS is to develop an environmentally sustainable culture (like ANSPs have had in safety for many years). An EMS does not work without visible top management commitment supporting a business culture that is led from the top.

5. What benefits have accrued, either with staff, politicians, or direct financial benefit?

The single leading benefit has been the identification of legal and regulatory obligations the organisation needs to comply with and to assure that these are being complied with. The ISO14001 certification also allowed Airservices Australia to comply with a Government direction that required all agencies and departments to implement an ISO14001 certification of at least one site.

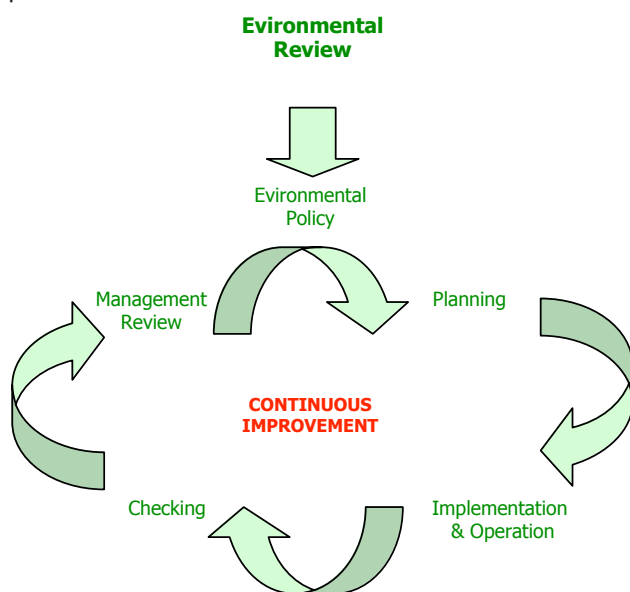
6. In your view has the EMS helped Airservices achieve continuous improvement in reducing environmental impact?

The EMS has allowed Airservices to identify the environmental aspects of its activities to determine those that have significant impacts and potential liabilities as well as identifying all legislative and regulatory requirements. The requirements for continuous improvement allow Airservices Australia to ensure that the EMS remains relevant to the organisation, review the effectiveness of the system, determine the extent to which environmental objectives and targets have been met, and identify required change to reflect concerns of interested parties such as regulators, government, customers and communities.

7 Elements of an Environmental Management System

The primary purpose of an EMS is to determine which aspects of the business have an impact on the environment. Once identified, these components are systematically managed to achieve better control and performance.

The EMS cycle can be thought of as a Plan, Do, Check, Act process of continuous improvement, aimed at improving business and environmental performance.



Environmental Review

An initial environmental review is required to identify all the organisation's environmental aspects and impacts. The review should cover four key areas:

- Identification of activities or services that can interact with the environment,
- Identification of legislation and other requirements which affect the organisation,
- Assessment of the organisation's environmental methods and routines, including procurement and hiring of consultants, and
- Evaluation of experiences from previous incidents.

Environmental Policy

An organisation's environmental policy is the most important steering document and describes the elements of an organisation's environmental activities. It defines the ambitions and visions relating to these activities and should ensure that they are thoroughly adopted by the organisation's management group.

The contents of the environmental policy should be in accordance with an ANSP's significant activities and services that can impact with the environment, and also include a commitment to continually improve environmental activities, prevent contamination and not least incorporate environmental legislation and other relevant requirements.

All staff within the ANSP should be aware of the contents of the environmental policy; this includes those working as consultants to the organisation.

Planning

Planning should identify the legislation which applies to the organisation and which will affect its operations/activities and services from an environmental perspective. The environmental impacts identified in the initial review stage also need to be identified in this process. To obtain the objectives and targets set, necessary actions need to be planned.

Consultation with all stakeholders and interested parties is a necessity at the planning stage to confirm ANSP policy priorities; to identify the actions, deliverables, milestones, timeline and KPIs required to ensure progress towards specific objectives and targets; to allocate responsibilities; and to plan for reporting mechanisms and promulgation activities.

Implementation and Operation

Having conducted extensive planning activities all that remains is the actual implementation. The implementation and operation should describe how the operation is governed in order to achieve environmental objectives as well as reduce environmental impact of the more important environmental aspects.

The management should at this stage make available adequate resources for the functioning of the environmental management system. Implementation and management involves roles, authorities and defining responsibility, documentation and communication.

The organisation should also see that routines are established and maintained for areas such as employee training courses, and internal and external environmental organisational communication. Emergency preparedness is necessary to prevent and reduce any possible environmental impact due to incidents.

Checking

Checking involves identifying and handling deviations or improvement activities. There are a few different ways for organisations to do this. Subsequent actions include measuring, monitoring, and evaluating so-called environmental performances. Environmental performance is a means of expressing a company's environmental aspects in the form of ratios.

An environmental audit involves a systematic, recorded, objective and periodical evaluation of an organisation's EMS, environmental organisation and routines as well as equipment. An organisation normally uses external as well as internal audits. The aim of conducting checks is to verify if the environmental management system is fully functioning to the requirements specified by the management.

Management Review

During the management review, the whole of the organisation's EMS should be discussed. Management should review the system to check its suitability, adequacy, objectivity and efficiency. It is not necessary to cover all parts of the environmental management system at the same time but all should be covered within a certain time period, for example during a calendar year.

The results from both the internal and external audits, records, measurements, deviations and management plan are an aid to briefing management and assisting decision-making.

Management reviews should include all

possible needs relating to changes in environmental policy, comprehensive environmental objectives, following up of legislation and other parts of the environmental management system based on, for example, results of the revision.

Accounting documents presented by the management should contain agendas, list of participants, notes relating to subject matter and decisions, reports and minutes. In this way the whole process begins again as the demand for continual improvement should be achieved.

8 Self Assessment

As previously mentioned, a typical ANSP may already have elements of an EMS embedded in its overall management system. Before investing in an EMS, a simple self assessment of existing systems and practices provides an organisation with a clear picture about what already exists and where improvement is required.

There are five levels² of environmental achievement against which an organisation should assess itself.

By undertaking a basic assessment such as the one outlined below, an organisation can determine the maturity of its existing system, and use the information to improve or modify its performance and appropriately apportion investment.

Level	Assessment Elements			
1. Basic	Environmental aspects are identified	Basic environmental controls are in place		
2. Proactive (Basic +)	A policy describing the organisation's environmental ambitions is defined	The contents of the environmental policy are in accordance with the ANSP's significant environmental impacts Contains a commitment to continually improve environmental activities and reduce environmental impacts	Environmental legislation and other requirements which apply to the organisation and which can affect its operations / activities and services from an environmental perspective are identified	
3. Flexible (Proactive +)	Processes are implemented to achieve environmental objectives as well as reduce environmental impact of the more important business activities	Management has made available adequate resources for the functioning of the environmental management system	Roles, authorities and responsibility, documentation and environmental communication are defined	All staff within the ANSP are aware of the contents of the environmental policy
4. Progressive (Flexible +)	Measuring and monitoring is in place and environmental performance is evaluated	Environmental audits are performed and evaluated in a systematic, recorded, objective manner	At pre-determined intervals, the management checks the system's suitability, adequacy, objectivity and efficiency	The organisation is prepared for emergencies to prevent and reduce any possible environmental impact due to incidents
5. Achieving Sustained Success (Progressive +)	The organisation can demonstrate that its approach to environment management meets the needs of the present, without compromising the needs of future generations of society		The organisation has a process of continual improvement in place to take into account the need for environmental protection in the total life cycle of its services	The environmental policy is accessible by the general public

² As determined through CANSO Member consultation and by the CASNO Environment work group