Environmental management systems — Requirements with guidance for use

Systèmes de management environnemental — Exigences et lignes directrices pour son utilisation

ICS: 13.020.10
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information. The committee responsible for this document is Technical Committee ISO/TC 207, Environmental management, Subcommittee SC 1, Environmental management systems.

This third edition will cancel and replace the second edition (ISO 14001:2004), which has been technically revised.

NOTE TO THIS TEXT (which will not be included in the published International Standard):

This text has been prepared using the a high level structure, identical core text, and common terms with core definitions, designed to benefit users implementing multiple ISO management system standards, as set out in Annex SL, Appendix 2 of the ISO/IEC Directives, Part 1, Consolidated ISO Supplement, 2014.

The text of Annex SL is shown in the main body of the text (Clauses 1 to 10) by the use of black font. All other text is shown in blue font. This is only to facilitate analysis and will not be incorporated in the final version of ISO 14001.
0 Introduction

0.1 Background

Achieving a balance between environmental, social and economic sub-systems within the global system is considered essential in order to meet the needs of the present without compromising the ability of future generations to meet their needs. This concept of the ‘three pillars’ of sustainability is the goal of sustainable development.

Societal expectations for sustainable development, transparency and accountability have evolved within the context of increasingly stringent legislation, growing pressures on the environment from pollution, and the inefficient use of resources, management of waste, climate change and degradation of eco-systems and biodiversity.

This has led organizations to adopt a systematic approach to environmental management by implementing environmental management systems with the aim to contribute to the ‘environmental pillar’ of sustainability.

0.2 Aim of an environmental management system

The purpose of this International Standard is to provide organizations with a systematic framework to protect the environment and respond to changing environmental conditions in balance with socio-economic needs. It does so by specifying requirements for an environmental management system that enables an organization to enhance environmental performance by:

- developing and implementing an environmental policy and objectives;
- identifying aspects of its activities, products and services that can result in significant environmental impacts;
- establishing systematic processes which consider its context, and take into account its significant environmental aspects, risk associated with threats and opportunities and its compliance obligations;
- increasing awareness of its relationship with the environment;
- establishing operational controls to manage its significant environmental aspects and compliance obligations;
- evaluating environmental performance and taking actions, as necessary.

A systematic approach to environmental management can provide top management with information to build success over the long term and create options for contributing to sustainable development by:

- protecting the environment by preventing or reducing adverse impacts on the environment;
- mitigating the potential adverse impact of environmental conditions on the organization;
- assisting in conforming to compliance obligations;
- enhancing environmental performance;
- controlling or influencing the way the organization’s products and services are designed, manufactured, distributed, consumed and disposed by using a life cycle perspective that can prevent environmental burdens from being inadvertantly shifted elsewhere within the cycle;
- achieving financial and operational benefits that can result from implementing environmentally sound alternatives that strengthen the organization’s market position;
communicating environmental information to relevant interested parties.

0.3 Success factors

The success of an environmental management system depends on commitment from all levels and functions of the organization, led by top management. They can leverage opportunities to reduce or eliminate environmental impacts, particularly those with strategic and competitive implications. Top management can effectively address these opportunities by integrating environmental management into its business processes, strategy and decision making, aligning them with other business priorities, and incorporating environmental governance into its overall management system. Demonstration of successful implementation of this International Standard can be used to assure interested parties that an appropriate environmental management system is in place.

Adoption of this International Standard, however, will not in itself guarantee optimal environmental outcomes. Two organizations can carry out similar activities but may have different compliance obligations, environmental policy commitments, environmental technologies in use and environmental performance goals, yet both can conform to the requirements of this International Standard.

The level of detail and complexity, the extent of documentation and the resources needed for an environmental management system will depend on a number of factors, such as the organization’s context, its size and location, its compliance obligations, the scope of the system, and the nature of its activities, products and services, including its environmental aspects and potential impacts.

0.4 Plan, Do, Check and Act approach

The basis for the approach underlying an environmental management system is founded on the Shewhart concept of Plan, Do, Check and Act (PDCA) made popular by Deming. The PDCA model demonstrates an iterative process used by organizations to achieve continual improvement. It can be applied to a management system and to each of its individual elements. It can be briefly described as follows.

Plan: establish objectives and processes necessary to deliver results in accordance with the organization’s policy.

Do: implement the processes as planned.

Check: monitor and measure processes against the policy, including its commitments, objectives and operational controls, and report the results.

Act: take actions to continually improve.

This International Standard incorporates the PDCA concept into a new framework, as shown in Figure 1.
Figure 1 — Environmental management system model for this International Standard

0.5 Contents of this International Standard

This International Standard includes revisions to meet environmental challenges facing organizations and provide value to both new and existing users. It also includes revisions to conform to ISO’s requirements for management system standards\(^1\). These requirements include a high level structure, identical core text, and common terms with core definitions, designed to benefit users implementing multiple ISO management system standards.

The body of this International Standard, Clauses 1 through 10, contains the requirements used to assess conformity. Annex A provides informative explanations to prevent misinterpretation of ISO/DIS 14001:2014 requirements. Annex B identifies broad technical correspondence between the previous edition of this International Standard (ISO 14001:2004) and this edition. Implementation guidance on environmental management systems is included in ISO 14004\(^2\).

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2) Revision of ISO 14004 is ongoing.
Environmental management systems — Requirements with guidance for use

1 Scope

This International Standard specifies the requirements of an environmental management system for organizations seeking to establish, implement, maintain and continually improve a framework with the aim to manage its environmental responsibilities in a manner that contributes to the ‘environmental pillar’ of sustainability.

The intended outcomes of an environmental management system provide value for the environment, the organization and its interested parties. Consistent with the organization’s environmental policy, the intended outcomes of an environmental management system include:

- enhancement of environmental performance;
- conforming to compliance obligations;
- fulfilment of environmental objectives.

This International Standard is applicable to any organization regardless of size, type and nature and applies to the environmental aspects that the organization determines it can either control or can influence considering a life cycle perspective. It does not state specific environmental performance criteria, nor does it increase or change an organization’s legal obligations.

This International Standard can be used in whole or in part to improve environmental management, but all the requirements are intended to be incorporated into an environmental management system and fulfilled, without exclusion, if an organization claims it complies with this International Standard.

2 Normative references

No normative references are cited. This clause is included to maintain clause numbering alignment with other ISO management system standards.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 organization

person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives (3.16)

Note 1 to entry: The concept of organization includes, but is not limited to sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or part or combination thereof, whether incorporated or not, public or private.
3.2 **top management**

person or group of people who directs and controls an *organization* (3.1) at the highest level

Note 1 to entry: Top management has the power to delegate authority and provide resources within the organization.

Note 2 to entry: If the scope of the *management system* (3.3) covers only part of an organization, then top management refers to those who direct and control that part of the organization.

3.3 **management system**

set of interrelated or interacting elements of an *organization* (3.1) to establish policies and *objectives* (3.16) and *processes* (3.26) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines (e.g. quality, environment, occupational health and safety).

Note 2 to entry: The system elements include the organization’s structure, roles and responsibilities, planning and operation, performance evaluation and improvement.

Note 3 to entry: The scope of a management system may include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

3.4 **environmental management system**

part of the *management system* (3.3) used to manage *environmental aspects* (3.9), conform to *compliance obligations* (3.22), and address *risk* (3.18) associated with threats and opportunities

3.5 **interested party**

person or *organization* (3.1) that can affect, be affected by, or perceive itself to be affected by a decision or activity

Note 1 to entry: Interested parties can include person(s) and groups concerned with or affected by the *environmental performance* (3.13) of an organization.

Note 2 to entry: To “perceive itself to be affected” means the perception has been made known to the organization.

Note 3 to entry: Interested parties can include customers, communities, suppliers, regulators, nongovernment organizations, investors, employees.

3.6 **environmental policy**

intentions and direction of an *organization* (3.1) as formally expressed by its *top management* (3.2) related to *environmental performance* (3.13)

3.7 **documented information**

information required to be controlled and maintained by an *organization* (3.1) and the medium on which it is contained

Note 1 to entry: Documented information can be in any format and media, and from any source.

Note 2 to entry: Documented information can refer to:

- the *environmental management system* (3.4), including related *processes* (3.26);
- information created in order for the organization to operate *(may also be referred to as documentation)*;
3.8 environment
surroundings in which an organization (3.1) operates including air, water, land, natural resources, flora, fauna, humans and their interrelations

Note 1 to entry: Surroundings in this context can extend from within an organization to the local, regional and global system.

Note 2 to entry: Surroundings may be described in terms of biodiversity, ecosystems, climate or other characteristics.

3.9 environmental aspect
element of an organization's (3.1) activities or products or services that interacts or can interact with the environment (3.8)

Note 1 to entry: An environmental aspect can cause (an) environmental impact(s) (3.10). A significant environmental aspect is one that has or can have a significant environmental impact.

Note 2 to entry: Significant environmental aspects are determined by the organization applying one or more criteria.

3.10 environmental impact
change to the environment (3.8), whether adverse or beneficial, wholly or partially resulting from an organization’s (3.1) environmental aspects (3.9)

3.11 environmental condition
state or characteristic of the environment (3.8) as determined at a certain point of time

3.12 performance
measurable result

Note 1 to entry: Performance can relate either to quantitative or qualitative findings.

Note 2 to entry: Performance can relate to the management of activities, processes (3.26), products (including services), systems or organizations (3.1).

3.13 environmental performance
performance (3.12) related to the management of environmental aspects (3.9)

Note 1 to entry: In the context of environmental management systems (3.4), results can be measured against the organization's environmental policy (3.6), environmental objectives (3.17) or other criterion, using indicators.

3.14 prevention of pollution
use of processes (3.26), practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutant or waste, in order to reduce adverse environmental impacts (3.10)

Note 1 to entry: Prevention of pollution can include source reduction or elimination, process, product or service changes, efficient use of resources, material and energy substitution, reuse, recovery, recycling, reclamation and treatment.
3.15 **life cycle**

Consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to end-of-life treatment.

Note 1 to entry: Life cycle includes activities, products, and services and may include procured goods and services, as well as end-of-life treatment of products and delivery of services, for example, design, manufacture, transport, packaging and end-use or disposal.

[Source: ISO 14044:2006, 3.1, modified — refer to 'end-of-life treatment', not 'final disposal', Note 1 to entry was added].

3.16 **objective**

Result to be achieved.

Note 1 to entry: An objective can be strategic, tactical, or operational.

Note 2 to entry: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product, service and process (3.26)).

Note 3 to entry: An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, as an environmental objective (3.17), or by the use of other words with similar meaning (e.g. aim, goal, or target).

3.17 **environmental objective**

Objective (3.16) set by the organization (3.1) consistent with the environmental policy (3.6).

3.18 **risk**

Effect of uncertainty on objectives (3.16).

Note 1 to entry: An effect is a deviation from the expected — positive or negative.

Note 2 to entry: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.

Note 3 to entry: Risk is often characterized by reference to potential "events" (as defined in ISO Guide 73:2009, 3.5.1.3) and "consequences" (as defined in ISO Guide 73:2009, 3.6.1.3), or a combination of these.

Note 4 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated "likelihood" (as defined in ISO Guide 73:2009, 3.6.1.1) of occurrence.

3.19 **competence**

Ability to apply knowledge and skills to achieve intended results.

3.20 **effectiveness**

Extent to which planned activities are realized and planned results achieved.

3.21 **requirement**

Need or expectation that is stated, generally implied or obligatory.

Note 1 to entry: "Generally implied" means that it is custom or common practice for the organization (3.1) and interested parties (3.5) that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, for example in documented information (3.7).
Note 3 to entry: Requirements other than legal requirements become obligatory when the organization decides to comply with them.

3.22 compliance obligation
requirement (3.21) that an organization (3.1) has to or chooses to comply with

Note 1 to entry: Obligations may arise from mandatory requirements (3.21), such as applicable laws and regulations, or voluntary commitments, such as organizational and industry standards, contractual relationships, principles of good governance and community and ethical standards.

[Source: ISO/DIS 19600:2014, 3.31]

3.23 conformity
fulfilment of a requirement (3.21)

3.24 nonconformity
non-fulfilment of a requirement (3.21)

Note 1 to entry: Nonconformity relates to compliance obligations (3.22), including requirements in this International Standard and additional environmental management system (3.4) requirements that an organization (3.1) establishes for itself.

3.25 corrective action
action to eliminate the cause of a nonconformity (3.24) and to prevent recurrence

3.26 process
set of interrelated or interacting activities which transforms inputs into outputs

Note 1 to entry: Processes can be documented or not.

3.27 measurement
process (3.26) to determine a value

3.28 audit
systematic, independent and documented process (3.26) for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled

Note 1 to entry: An internal audit is conducted by the organization (3.1) itself or by an external party on its behalf.

Note 2 to entry: An audit can be a combined audit (combining two or more disciplines).

Note 3 to entry: Independence can be demonstrated by the freedom from responsibility for the activity being audited or freedom from bias and conflict of interest.

Note 4 to entry: “Audit evidence” consists of verifiable records, statements of fact and other information relevant to the audit criteria, and “audit criteria” are the set of policies, procedures (3.30) or requirements (3.21) used as a reference against which audit evidence is compared, as defined in ISO 19011.

3.29 continual improvement
recurring activity to enhance performance (3.12)
Note 1 to entry: Enhancing performance relates to the use of the environmental management system (3.4) in order to enhance environmental performance (3.13) consistent with the organization's (3.1) environmental policy (3.6).

Note 2 to entry: The activity need not take place in all areas simultaneously, or without interruption.

3.30 procedure
specified way to carry out an activity or a process (3.26)

Note 1 to entry: Procedures can be documented or not.

3.31 monitoring
determining the status of a system, a process (3.26) or an activity

Note 1 to entry: To determine the status, there may be a need to check, supervise or critically observe.

3.32 outsource (verb)
make an arrangement where an external organization (3.1) performs part of an organization's function or process (3.26)

Note 1 to entry: An external organization is outside the scope of the management system (3.3), although the outsourced function or process is within the scope.

3.33 indicator
measurable representation of the condition or status of operations, management or conditions

4 Context of the organization

4.1 Understanding the organization and its context

The organization shall determine external and internal issues that are relevant to its purpose and that affect its ability to achieve the intended outcome(s) of its environmental management system. Those issues include environmental conditions capable of affecting or being affected by the organization.

4.2 Understanding the needs and expectations of interested parties

The organization shall determine:

— the interested parties that are relevant to the environmental management system;
— the relevant needs and expectations (i.e. requirements) of these interested parties;
— which of these needs and expectations become compliance obligations.

4.3 Determining the scope of the environmental management system

The organization shall determine the boundaries and applicability of the environmental management system to establish its scope.

When determining this scope, the organization shall consider:

— the external and internal issues referred to in 4.1;
— the compliance obligations referred to in 4.2;
— its organizational unit(s), function(s), and physical boundaries;
— its activities, products and services;
— its authority and ability to exercise control and influence.

Once the scope is defined, activities, products and services that can have significant environmental aspects (see 6.1.2) shall be included within the scope of the environmental management system.

The scope shall be maintained as documented information and be available to interested parties.

4.4 Environmental management system

The organization shall establish, implement, maintain and continually improve an environmental management system, including the processes needed and their interactions, in accordance with the requirements of this International Standard, to enhance its environmental performance.

The organization shall consider the knowledge of its context when establishing and maintaining the environmental management system.

5 Leadership

5.1 Leadership and commitment

Top management shall demonstrate leadership and commitment with respect to the environmental management system by:
— taking accountability for the effectiveness of the environmental management system;
— ensuring that the environmental policy and environmental objectives are established and are compatible with the strategic direction and the context of the organization;
— ensuring the integration of the environmental management system requirements into the organization’s business processes;
— ensuring that the resources needed for the environmental management system are available;
— communicating the importance of effective environmental management and of conforming to the environmental management system requirements;
— ensuring that the environmental management system achieves its intended outcome(s);
— directing and supporting persons to contribute to the effectiveness of the environmental management system;
— promoting continual improvement;
— supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

NOTE Reference to “business” in this International Standard can be interpreted broadly to mean those activities that are core to the purposes of the organization’s existence.
5.2 Environmental policy

Top management shall establish, implement and maintain an environmental policy that, within the defined scope of its environmental management system:

a) is appropriate to

1) the purpose of the organization;

2) the organization's context, including the nature, scale and environmental impacts of its activities, products and services;

b) provides a framework for setting environmental objectives;

c) includes (a) commitment(s) to the protection of the environment, including prevention of pollution and others specific to the context of the organization;

NOTE Other specific commitment(s) to protect the environment can include sustainable resource use, climate change mitigation and adaptation, and protection of biodiversity and ecosystems, or other relevant environmental issues (see 4.1).

d) includes a commitment to conform to compliance obligations;

e) includes a commitment to continual improvement of the environmental management system to enhance environmental performance.

The environmental policy shall:

— be maintained as documented information;

— be communicated within the organization, including persons doing work under the organization's control;

— be available to interested parties.

5.3 Organizational roles, responsibilities and authorities

Top management shall ensure that the responsibilities and authorities for relevant roles are assigned and communicated within the organization to facilitate effective environmental management.

Top management shall assign the responsibility and authority for:

a) ensuring that the environmental management system conforms to the requirements of this International Standard;

b) reporting on the performance of the environmental management system, including environmental performance, to top management.

6 Planning

6.1 Actions to address risk associated with threats and opportunities

6.1.1 General

The organization shall plan and implement a process to meet the requirements in 6.1.

When planning for the environmental management system in 6.1 (i.e. 6.1.2 - 6.1.4), the organization shall consider the issues referred to in 4.1 and the requirements referred to in 4.2.
The organization shall maintain documented information to the extent necessary to have confidence that the process has been carried out as planned.

6.1.2 Significant environmental aspects

Within the defined scope of the environmental management system, the organization shall:

a) identify the environmental aspects and associated environmental impacts of its activities, products and services that it can control and those that it can influence, considering a life cycle perspective;

b) take into account:

1) change, including planned or new developments and new or modified activities, products and services;

2) identified abnormal and potential emergency situations.

The organization shall determine those aspects that have or can have a significant impact on the environment, i.e. significant environmental aspects.

The organization shall communicate its significant environmental aspects among the various levels and functions of the organization.

The organization shall maintain documented information of its:

— criteria used to determine its significant environmental aspects;

— environmental aspects and associated environmental impacts;

— significant environmental aspects.

NOTE Significant environmental aspects can result in risk associated with either adverse environmental impacts (threats) or beneficial environmental impacts (opportunities).

6.1.3 Compliance obligations

The organization shall:

a) identify and have access to the compliance obligations related to its environmental aspects;

b) determine how these compliance obligations apply to the organization.

The organization shall maintain documented information of its compliance obligations.

NOTE Compliance obligations can have the potential to result in risk associated with either adverse impacts (threats) or beneficial impacts (opportunities) to the organization.

6.1.4 Risk associated with threats and opportunities

The organization shall determine the risk associated with threats and opportunities that needs to be addressed to:

— give assurance that the environmental management system can achieve its intended outcome(s);

— prevent, or reduce, undesired effects, including the potential for external environmental conditions to affect the organization;

— achieve continual improvement.
The organization shall maintain documented information of the risk associated with threats and opportunities that needs to be addressed.

6.1.5 Planning to take action

The organization shall plan:

a) to take actions to address risk associated with threats and opportunities (see 6.1.4), significant environmental aspects (see 6.1.2) and compliance obligations (see 6.1.3);

b) how to:

— integrate and implement the actions into its environmental management system processes;

— evaluate the effectiveness of these actions.

6.2 Environmental objectives and planning to achieve them

6.2.1 Environmental objectives

The organization shall establish environmental objectives at relevant functions and levels:

— taking into account the organization’s significant environmental aspects and its compliance obligations;

— considering the risk associated with threats and opportunities.

When developing these objectives, the organization shall consider its technological options and financial, operational and business requirements.

The environmental objectives shall:

be consistent with the environmental policy;

a) be measurable (if practicable);

b) be monitored;

c) be communicated;

d) be updated as appropriate.

The organization shall retain documented information on the environmental objectives.

6.2.2 Planning actions to achieve environmental objectives

When planning how to achieve its environmental objectives, the organization shall determine:

— what will be done;

— what resources will be required;

— who will be responsible;

— when it will be completed;

— how the results will be evaluated, including indicators for monitoring progress toward achievement of measurable environmental objectives (see 9.1.1).
The organization shall consider how the actions to achieve environmental objectives can be integrated into the organization’s business processes.

7 Support

7.1 Resources

The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the environmental management system.

7.2 Competence

The organization shall:

— determine the necessary competence of person(s) doing work under its control that affects its environmental performance;

— ensure that these persons are competent on the basis of appropriate education, training, or experience;

— where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken.

NOTE Applicable actions can include, for example, the provision of training to, the mentoring of, or the re-assignment of currently employed persons; or the hiring or contracting of competent persons.

The organization shall retain appropriate documented information as evidence of competence.

7.3 Awareness

Persons doing work under the organization’s control shall be aware of:

— the environmental policy;

— the significant environmental aspects and related actual or potential impacts associated with their work;

— their contribution to the effectiveness of the environmental management system, including the benefits of enhanced environmental performance;

— the implications of not conforming with the environmental management system requirements including compliance obligations.

7.4 Communication

7.4.1 General

The organization shall plan and implement a process for internal and external communications relevant to the environmental management system, including:

— on what it will communicate;

— when to communicate;

— with whom to communicate;

— how to communicate.

When planning its communications process, the organization shall:
481 — take into account its compliance obligations;
482 — ensure that environmental information communicated is consistent with information generated within the environmental management system, and is reliable.
484 The organization shall respond to relevant communications on its environmental management system.
485 The organization shall retain documented information as evidence of its communications, as appropriate.
486 7.4.2 Internal communication
487 With regard to its environmental management system, the organization shall:
488 a) communicate among the various levels and functions of the organization, including changes to the environmental management system, as appropriate;
490 b) ensure its communication process enables any person doing work under the organization’s control to contribute to continual improvement.
492 7.4.3 External communication
493 The organization shall externally communicate information relevant to the environmental management system, as determined by its communication process and as required by its compliance obligations.
495 7.5 Documented information
496 7.5.1 General
497 The organization’s environmental management system shall include:
498 a) documented information required by this International Standard;
499 b) documented information determined by the organization as being necessary for the effectiveness of the environmental management system.
501 NOTE The extent of documented information for an environmental management system can differ from one organization to another due to:
503 — the size of organization and its type of activities, processes, products and services;
504 — the complexity of processes and their interactions;
505 — the competence of persons.
506 7.5.2 Creating and updating
507 When creating and updating documented information the organization shall ensure appropriate:
508 — identification and description (e.g. a title, date, author, or reference number);
509 — format (e.g. language, software version, graphics) and media (e.g. paper, electronic);
510 — review and approval for suitability and adequacy.
7.5.3 Control of documented information

Documented information required by the environmental management system and by this International Standard shall be controlled to ensure:

a) it is available and suitable for use, where and when it is needed;

b) it is adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity).

For the control of documented information, the organization shall address the following activities, as applicable:

- distribution, access, retrieval and use;
- storage and preservation, including preservation of legibility;
- control of changes (e.g. version control);
- retention and disposition.

Documented information of external origin determined by the organization to be necessary for the planning and operation of the environmental management system shall be identified, as appropriate, and controlled.

NOTE Access can imply a decision regarding the permission to review the documented information only, or the permission and authority to view and change the documented information.

8 Operation

8.1 Operational planning and control

The organization shall plan, implement and control the processes needed to meet environmental management system requirements, and to implement the actions determined in 6.1 and 6.2, by:

- establishing criteria for the processes;
- implementing control of the processes, in accordance with the criteria and to prevent deviation from the environmental policy, environmental objectives and compliance obligations.

NOTE Controls can include engineering controls, procedures, documented procedure, etc. They can be implemented following a hierarchy (e.g. elimination, substitution, administrative) and can be used singly or in combination.

The organization shall control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary.

The organization shall ensure that outsourced processes are controlled or influenced. The type and degree of control or influence to be applied to these processes shall be defined within the environmental management system.

Consistent with a life cycle perspective, the organization shall:

a) determine environmental requirements for the procurement of products and services, as appropriate;

b) establish controls to ensure that environmental requirements are considered in the design process for the development, delivery, use and end-of-life treatment of its products and services, as appropriate;

c) communicate relevant environmental requirement(s) to external providers, including contractors;
545 d) consider the need to provide information about potential significant environmental impacts during the
delivery of the products or services and during use and end-of-life treatment of the product.

547 The organization shall maintain documented information to the extent necessary to have confidence that the
processes have been carried out as planned.

549 8.2 Emergency preparedness and response

550 The organization shall establish and implement a procedure specifying how it will respond to potential
environmental emergency situations and potential accidents.

552 The organization shall:

553 a) respond to actual emergency situations and accidents;

554 b) take action to reduce the consequences of environmental emergency situations, appropriate to the
magnitude of the emergency or accident and the potential environmental impact;

556 c) take action to prevent the occurrence of environmental emergency situations and accidents;

557 d) periodically test the procedure where practicable;

558 e) periodically review and, where necessary, revise the procedure, in particular, after the occurrence of
accidents, emergency situations or tests.

560 9 Performance evaluation

561 9.1 Monitoring, measurement, analysis and evaluation

562 9.1.1 General

563 The organization shall determine:

564 — what needs to be monitored and measured, related to:

565 1) its operations that can have a significant environmental impact;

566 2) its compliance obligations;

567 3) operational controls;

568 4) progress towards the organization’s environmental objectives, using indicators;

569 — the methods for monitoring, measurement, analysis and evaluation, as applicable, to ensure valid results;

570 — the criteria against which the organization will evaluate its environmental performance, using appropriate
indicators;

572 — when the monitoring and measuring shall be performed;

573 — when the results from monitoring and measurement shall be analysed and evaluated.

574 The organization shall ensure that calibrated or verified monitoring and measurement equipment is used and
maintained as appropriate.

576 The organization shall evaluate its environmental performance and provide input to the management review
(see 9.3) for the evaluation of the effectiveness of the environmental management system.
The organization shall retain appropriate documented information as evidence of the monitoring, measurement, analysis and evaluation results.

The organization shall communicate information relevant to its environmental performance both internally and externally, as determined by its communication process and as required by its compliance obligations.

9.1.2 Evaluation of compliance

The organization shall plan and implement a process to evaluate conformity with its compliance obligations.

The organization shall:

— determine the frequency that compliance will be evaluated;
— evaluate compliance and take action if needed;
— maintain knowledge and understanding of its status of conforming with compliance obligations.

The organization shall retain documented information as evidence of the compliance evaluation result(s).

9.2 Internal audit

9.2.1 The organization shall conduct internal audits at planned intervals to provide information on whether the environmental management system:

a) conforms to:
   — the organization’s own requirements for its environmental management system;
   — the requirements of this International Standard;

b) is effectively implemented and maintained.

9.2.2 The organization shall:

a) plan, establish, implement and maintain an audit programme(s), including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration the environmental importance of the processes concerned, risk associated with threats and opportunities and the results of previous audits;

b) define the audit criteria and scope for each audit;

c) select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;

d) ensure that the results of the audits are reported to relevant management.

The organization shall retain documented information as evidence of the implementation of the audit programme and the audit results.

9.3 Management review

Top management shall review the organization’s environmental management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.

The management review shall include consideration of:

a) the status of actions from previous management reviews;
b) changes in:

— external and internal issues that are relevant to the environmental management system;
— compliance obligations;
— its significant environmental aspects and risk associated with threats and opportunities;

c) the extent to which objectives have been met;

d) information on the organization’s environmental performance, including trends in:

— nonconformities and corrective actions;
— monitoring and measurement results;
— conformity to its compliance obligations;
— audit results;

e) communication(s) from external interested parties;

f) opportunities for continual improvement;

g) the adequacy of resources required for maintaining an effective environmental management system.

The outputs of the management review shall include:

— conclusions on the continuing suitability, adequacy and effectiveness of the environmental management system;
— decisions related to continual improvement opportunities;
— any need for changes to the environmental management system, including resource needs;
— actions if needed, when objectives have not been met;
— any implications for the strategic direction of the organization.

The organization shall retain documented information as evidence of the results of management reviews.

10 Improvement

10.1 Nonconformity and corrective action

When a nonconformity occurs, the organization shall:

a) react to the nonconformity and, as applicable:

— take immediate action to control and correct it;
— mitigate adverse environmental impacts;
— deal with the consequences;
b) evaluate the need for action to eliminate the causes of the nonconformity, in order that it does not recur or occur elsewhere, by:

— reviewing the nonconformity;
— determining the causes of the nonconformity;
— determining if similar nonconformities exist, or could potentially occur;

c) determine and implement any corrective action needed;

d) review the effectiveness of any corrective action taken;

e) make changes to the environmental management system, if necessary.

Corrective actions shall be appropriate to the significance of the effects of the nonconformities encountered, including the environmental impact(s).

The organization shall retain documented information as evidence of:

— the nature of the nonconformities and any subsequent actions taken;
— the results of any corrective action.

10.2 Continual improvement

The organization shall continually improve the suitability, adequacy and effectiveness of the environmental management system to enhance environmental performance.
Annex A
(informative)

Guidance on the use of this International Standard

A.1 General

This International Standard outlines the requirements of a robust, credible and reliable environmental management system. The additional text given in this Annex is strictly informative and is intended to prevent misinterpretation of the requirements contained in this International Standard. While this information addresses and is consistent with these requirements, it is not intended to add to, subtract from, or in any way modify them.

The user should not read a particular sentence or clause of this International Standard in isolation from other clauses of the standard. There is an interrelationship between the requirements in some clauses with the requirements in other clauses.

A.2 Scope

This International Standard does not contain explanatory information on Clause 1.

A.3 Normative references

This International Standard does not contain explanatory information on Clause 2.

A.4 Terms and definitions

The terms that are defined in Clause 3 have a specialized technical meaning and are normative for use in this International Standard. This sub-clause provides further explanation of some of the words that are commonly used in management system standards, to help the user understand their implications and to help in translations.

— ‘Programme’: planned series of steps, projects or activities to be carried out.

— ‘Design’: working out the form, fit or function of something.

— ‘Purpose’: anticipated (intended or expected) outcome that guides planned actions.

— ‘Determine’: establish or find out.

— ‘Define’: state or describe exactly the nature, scope or meaning of that which is under consideration.

— ‘Identify’: establish the identity of something.

To avoid misunderstanding, clarifications of selected concepts are provided below.

— ‘NOTES’ included in the various clauses of this International Standard are informative.

— ‘Continual’ indicates duration that occurs over a period of time, but with intervals of interruption (unlike ‘continuous’ which indicates duration without interruption). ‘Continual’ is therefore the appropriate word to use in the context of improvement.
The word ‘consider’ means it is necessary to think about but can be rejected; and ‘take into account’ means it is necessary to think about but cannot be rejected.

The words ‘appropriate’ and ‘applicable’ are not interchangeable. ‘Appropriate’ means suitable (for, to) and implies some degree of freedom, while ‘applicable’ means relevant or possible to apply and implies that if it can be done, it should be done.

This International Standard uses the term ‘interested party’, the term ‘stakeholder’ is a synonym as it represents the same concept.

The word ‘ensure’ means the responsibility can be delegated, but not the accountability to make sure that it is performed.

This International Standard uses some new terminology. A brief explanation is given below to aid both new users and those who have used prior editions of this International Standard.

‘Documented information’ replaces the nouns ‘documentation’ and ‘record’ used in prior editions of this International Standard. To distinguish the intent of the generic term ‘documented information’, this International Standard now uses the phrase ‘retain documented information as evidence of….’ to mean records, and ‘maintain documented information’ to mean documentation other than records. The phrase “as evidence of…” is not a requirement to meet legal evidentiary requirements; its intent is only to indicate objective evidence needs to be retained.

The change from ‘identify’ to ‘determine’ is intended to harmonize with the standardized management system terminology, not to change the intent of the previous edition of this International Standard. The term ‘determine’ implies a discovery process that results in knowledge.

The term ‘intended outcome’ means what the organization intends to achieve by implementing its environmental management system, which includes enhancement of environmental performance, conformance to compliance obligations and fulfilment of environmental objectives. These are the minimal, core outcomes, and organizations can set additional intended outcomes for their environmental management system.

The phrase ‘compliance obligations’ replaces the phrase ‘legal requirements and other requirements to which the organization subscribes’ used in prior editions of this International Standard. The change is considered simpler to understand, and does not change the intent of the previous edition of this International Standard.

The use of the word ‘any’ implies selection and choice.

A.5 Context of the organization

A.5.1 Understanding the context of the organization

The intent of 4.1 is to provide a high-level, conceptual understanding of the important issues that can affect, either positively or negatively, the way the organization manages its environmental responsibilities. Issues are important topics for the organization, problems for debate and discussion or changing circumstances that affect the organization’s ability to achieve the intended outcomes it sets for its environmental management system.

Internal and external Issues relevant to the organization’s context may include, but are not limited to:

a) environmental conditions related to climate, air quality, water quality, land use, existing contamination, natural resource availability, biodiversity, etc., that can either affect the organization’s purpose, or be affected by its environmental aspects;
b) the external cultural, social, political, legal, regulatory, financial, technological, economic, natural and competitive context, whether international, national, regional or local;

c) the internal characteristics or conditions of the organization, such as its activities, products and services, strategic direction, culture and capabilities (people, knowledge, processes, systems).

An understanding of an organization's context results in knowledge that is used to guide its efforts to establish, implement, maintain and continually improve its environmental management system (see 4.4). The internal and external issues that give rise to risk associated with threats and opportunities to the organization or to the environmental management system (see 6.1.4) need to be addressed (see 6.1.5) and managed (see 6.2, 8.1, 8.2 and 9.1).

This organization may document its knowledge of the organization's context, as appropriate.

A.5.2 Understanding the needs and expectations of interested parties

An organization is expected to gain a general (i.e., high-level, not detailed) understanding of the expressed needs and expectations of those internal and external interested parties that have been determined to be relevant so that the knowledge gained can be considered when determining its compliance obligations.

The organization is expected to consider known needs and expectations of interested parties in order to determine those that are relevant. In the case of an interested party perceiving itself to be affected by the organization's decisions or activities related to environmental performance, the organization considers the relevant needs and expectations that have been in some way expressed or disclosed by the party to the organization.

Interested party requirements are not necessarily requirements of the organization. Some interested party requirements reflect needs and expectations that are mandatory because they have been incorporated into laws, regulations, permits and licenses by governmental or even court decision. Others the organization may decide to voluntarily agree to or adopt, (e.g. entering into a contractual relationship, or subscribing to a voluntary initiative). Once the organization adopts them, then they become organizational requirements, i.e. compliance obligations, and are taken into account when planning for the environmental management system (see 4.4). A more detailed-level analysis of its compliance obligations is performed in 6.1.3.

The organization may document its knowledge of relevant interested party requirements, as appropriate.

A.5.3 Scope of the environmental management system

The scope of the environmental management system is intended to clarify the spatial and organizational boundaries to which the environmental management system will apply, especially if the organization is a part of a larger organization at a given location. An organization has the freedom and flexibility to define its boundaries. It may choose to implement this International Standard with respect to the entire organization, or to (a) specific part(s) of the organization, as long as the top management of that part of the organization has authority for establishing an environmental management system.

In setting the scope, the credibility of the environmental management system will depend upon the choice of organizational boundaries. The organization considers the degree of control or influence that it can exert over activities, products and services considering a life cycle perspective. Scoping should not be used to exclude activities, products, services, or facilities that have or can have significant environmental aspects, or to evade its compliance obligations. The scope should be factual and representative of the organization's operations included within its environmental management system boundaries so that it does not mislead interested parties.

Once the organization asserts it conforms to this International Standard, the scope is made available to interested parties.
A.5.4 Environmental management system

The organization retains authority, accountability, and autonomy, to decide how it will fulfil the requirements of this International Standard, including the level of detail and extent to which it will:

- integrate environmental management system requirements into its various business functions, such as design & development, procurement, human resources, sales and marketing, etc.;
- incorporate issues associated with its context (see 4.1) and interested party requirements (see 4.2) within its environmental management system.

If this International Standard is implemented for (a) specific part(s) of an organization, policies and procedures developed by other parts of the organization can be used to meet the requirements of this International Standard, provided that they are applicable to the specific part(s) that will be subject to them.

A.6 Leadership

A.6.1 Leadership and commitment

Commitment and active support, including providing adequate resources, from the organization's top management are critical for the success of the environmental management system.

5.1 specifies actions in which top management is personally involved with and directs in the organization. Top management may not perform all of these actions themselves (e.g. they may delegate responsibility to others), but they are accountable for ensuring that they are performed.

Top management is expected to create a culture and environment that encourages people in leadership roles (not necessarily formal management positions, e.g. team leaders) to work actively towards implementing the requirements of the environmental management system and fulfilling the environmental objectives.

A.5.2 Environmental policy

The environmental policy is a set of principles stated as commitments in which top management outlines the long-term direction of the organization to support and enhance its environmental performance. The environmental policy enables the organization to set its objectives and take actions to achieve the intended outcomes of the environmental management system.

5.2 specifies three basic commitments for the environmental policy: to protect the environment, to conform to the organization’s compliance obligations and to continual improvement. These commitments are then addressed in specific requirements in other clauses to establish, implement, maintain and continually improve a robust, credible and reliable environmental management system.

The commitment to protect the environment is intended to not only prevent adverse environmental impacts, but to protect the natural environment from harm and degradation. The specific commitment(s) an organization pursues should be relevant to its context and positively affect the local or regional environmental conditions. These commitments may address water quality, recycling, or air quality and may also include far broader opportunities related to climate change mitigation and adaptation, preservation of biodiversity and ecosystems, and restoration.

It is important to understand that the requirements in this International Standard need to be viewed from a systems or holistic perspective. This means that the organization needs to have an appreciation for the relationship between the policy commitments and the requirements that are specified in other clauses.

While all the commitments are important, some interested parties are especially concerned with the organization’s commitment to conform to its compliance obligations, particularly the need for the organization to meet applicable legal requirements. In this respect it is important to acknowledge that this International Standard specifies a number of interconnected requirements related to this commitment. This includes the
need to determine compliance obligations, to ensure operations are carried out in accordance with these
compliance obligations and to evaluate conformity with the compliance obligations.

The organization’s reputation and the credibility of its environmental management system are dependent on
its success in meeting and when possible, exceeding all of its policy commitments.

A.5.3 Organizational roles, responsibilities and authorities

Person(s) assigned these roles by top management should have sufficient access to top management in order
to ensure the participation of top management in case of critical situations related to the establishment,
implementation, maintenance and continual improvement of the environmental management system. The role
and authority for reporting on the performance of the environmental management system is often assigned
to (a) management representative(s).

A.6 Planning

A.6.1 Actions to address risk associated with threats and opportunities

A.6.1.1 General

The context of the organization (see 4.1 and 4.2) provides an overarching framework for evaluating the risk
associated with threats and opportunities in 6.1. It provides a basis for:

a) identifying environmental aspects and for establishing criteria for determining those that may be significant;
b) determining compliance obligations and understanding how they apply to the organization’s activities, products and services; and

c) establishing criteria for evaluating risk associated with threats and opportunities.

Issues identified when considering the organization’s context, its significant environmental aspects or its compliance obligations and their associated threats and opportunities are to be taken into account in establishing, implementing maintaining and continually improving the organization’s environmental management system.

It is up to the organization to determine the nature and level of detail of the documented information it develops.

A.6.1.2 Significant environmental aspects

6.1.2 sets out the process(es) an organization should use to identify its environmental aspects and associated impacts, and to determine those that are significant which should be addressed as a priority by the organization’s environmental management system.

Changes to the environment, either adverse or beneficial, that result wholly or partially from environmental aspects are called environmental impacts. The environmental impact may occur at local, regional and global scales, while they may also be direct, indirect or cumulative by nature. The relationship between environmental aspects and environmental impacts is one of cause and effect.

In the identification of environmental aspects the organization should apply a life cycle perspective. However, this does not require a detailed life cycle assessment; a simple consideration of the life cycle stages which can be controlled or influenced by the organization is sufficient. For this purpose the organization may obtain this information directly or seek it from the supplier of the products and services. Information already developed for regulatory or other purposes may be used in this process. Typical stages of a product life cycle can include, for example, extraction of raw materials, design, production, transportation, use, and end-of-life treatment. The life cycle stages that are applicable will vary depending on the activity, product or service.
An organization should identify the environmental aspects within the scope of its environmental management system, taking into account the inputs and outputs (both intended and unintended) associated with its current and relevant-past activities, products and services, planned or new developments, or new or modified activities, products and services.

An emergency situation can be considered an undesired event that, if not addressed, could ultimately lead to adverse consequences to the organization or the environment, as determined and prioritized during the environmental management system planning stage. The process of environmental aspects identification includes identification of normal and abnormal operating conditions, shut-down and start-up conditions, as well as reasonably foreseeable emergency situations. Special attention should be paid to prior occurrences of emergency situations, and results from testing emergency response procedures.

Organizations do not have to consider each product, component or raw material individually, and may select categories of activities, products and services to identify and evaluate their environmental aspects, when they can be managed in a common way.

Although there is no single approach for identifying environmental aspects, the approach selected could for example include:

a) emissions to air;

b) releases to water;

c) releases to land;

d) use of raw materials and natural resources;

e) use of energy;

f) energy emitted, e.g. heat, radiation, vibration (noise) and light;

g) generation of waste and/or by-products;

h) environmental aspects with beneficial impact.

In addition to the environmental aspects an organization can control directly, an organization needs to determine whether there are environmental aspects that it can influence. These can be related to products and services used by the organization which are provided by others, as well as products and services that it provides to others outside the organization, including those associated with outsourced processes. With respect to products and services the organization provides and renders to others, organizations may have limited influence on the use and final disposal of their products once they leave their control. However, in all circumstances it is the organization that determines the degree of control it is able to exercise, the environmental aspects it can influence, and the extent to which it chooses to exercise any such influence.

Consideration should be given to environmental aspects related to the organization's activities, products and services, such as:

— design and development of its facilities, processes, products and services, including development of products and services with reduced negative environmental impact;

— use of raw materials and natural resources;

— operational or manufacturing processes, including warehousing;

— operation and maintenance of facilities, organizational assets and infrastructure;

— environmental performance and practices of contractors and suppliers;
product distribution and service delivery, including packaging and transportation;
— storage, use and end-of-life treatment of products;
— waste generation, management and disposal, including reuse, refurbishing, recycling.

There is no single method for determining significant environmental aspects. However, the method and criteria used should provide consistent results.

An environmental aspect can cause an environmental impact therefore it can result in a threat or opportunity that needs to be addressed in order to ensure the organization can achieve the intended outcomes of the environmental management system. An environmental aspect having the potential to cause an adverse impact to the environment can be considered a “threat”, whereas an environmental aspect having the potential to cause a beneficial environmental impact can be considered an “opportunity”.

A.6.1.3 Compliance obligations

The organization needs to determine, at a detailed level, the compliance obligations it identified in 4.2 that are applicable to its environmental aspects and how they apply to the organization. Compliance obligations include legal and other mandatory obligations that the organization is required to comply with, and those obligations which the organization has discretion over whether or not to adopt.

Legal obligations are mandatory requirements issued by governmental entities or other relevant authorities. These may include:
— law and regulations;
— permits, licenses or other forms of authorization;
— orders, rules or guidance issued by regulatory agencies;
— judgments of courts or administrative tribunals;
— treaties, conventions and protocols.

Compliance obligations also include other interested party requirements related to its environmental aspects, which the organization chooses to adopt. These may include, if applicable:

a) agreements with community groups or non-governmental organizations;
b) agreements with public authorities and customers;
c) organizational requirements;
d) voluntary principles or codes of practice;
e) voluntary labelling or environmental commitments;
f) obligations arising under contractual arrangements with the organization;
g) relevant organizational and industry standards.

The primary difference between a legal requirement and a voluntary obligation is that the organization chooses to adhere to its voluntary obligations. However, once that choice is made, adherence becomes mandatory, particularly where legally binding agreements are made.
A.6.1.4 Risk associated with threats and opportunities

Risk associated with threats and opportunities may be related to one or more of an organization’s significant environmental aspects, compliance obligations or other issues, such as those created by external environmental conditions or by any internal circumstances. The organization determines the risk associated with threats or opportunities that can affect its ability to achieve the intended outcome of its environmental management system, prevent or reduce undesired effects or achieve continual improvement, and therefore needs to be addressed. An organization can determine the risk associated with threats and opportunities separately or in combination, and can integrate its approach with the analyses in previous sub-clauses (see 6.1.2 and 6.1.3).

The organization selects the method by which risk associated with threats and opportunities is determined. The method may involve a very simple qualitative process or a full quantitative assessment, depending on the context in which the organization operates (e.g. size of the organization, technological sector, maturity level of the environmental management system).

The results of this determination are the input for planning actions (see 6.1.5) and for establishing the environmental objectives (see 6.2).

A.6.1.5 Planning to take action

Some of these threats and opportunities, including those created by other issues affecting the organization’s ability to achieve the intended outcomes of the environmental management system, can also be important inputs for other parts of the management system, such as support (see Clause 7), operation (see Clause 8), performance evaluation (see Clause 9) and improvement (see Clause 10).

The planning may address the actions through a single or combination of pathways within the environmental management system, including, e.g. setting objectives, operational planning and control, emergency preparedness or monitoring and measurement.

Some actions may be addressed through other business processes such as occupational health and safety or business continuity management systems, or other processes related to risk, financial or human resource management.

A.6.2 Environmental objectives and planning to achieve them

Environmental objectives may be established by top management at the strategic level, the tactical level or the operational level. The strategic level includes the highest levels of the organization and the objectives are applicable to the whole organization. The tactical and operational levels can include objectives for specific units or functions within the organization and should be compatible with its strategic direction. The concept of “target” used in prior editions of this International Standard is captured within the definition of “environmental objective”.

While the requirement to “take into account significant environmental aspects” does not mean that an objective has to be established for each significant aspect, it should be clear that significant aspects have a high priority when developing objectives.

“Consistent with the environmental policy” means that the environmental objectives need to be broadly aligned and harmonised with the commitments made by top management in the environmental policy.

Indicators are selected to measure the achievement of measurable objectives. By including the caveat ‘where practicable’, it is acknowledged that there may be situations when it may not be feasible to measure an objective. More guidance on setting environmental indicators can be found in ISO 14031.
A.7 Support

A.7.1 Resources

Resources include human resources, natural resources, infrastructure, technology, and financial resources.

Human resources include specialized skills and knowledge. Infrastructure includes the organization’s buildings, containment systems, pumps, etc.

A.7.2 Competence

This sub-clause applies to any person(s):

a) whose work has the potential to cause a significant environmental impact;

b) who are assigned responsibilities for the environmental management system, including those who:

1) identify and evaluate environmental impacts and compliance obligations;

2) contribute to the achievement of an environmental objective;

3) respond to emergency situations;

4) perform internal audits;

c) who otherwise affect(s) environmental performance.

A.7.3 Awareness

Awareness of the environmental policy should not be taken to mean that the commitments need to be memorized or that persons doing work under the organization’s control have a copy of the actual, documented environmental policy; rather, they should be aware of its existence, the purpose and their role in achieving the commitments.

A.7.4 Communication

Communication allows the organization to provide and obtain information relevant to its environmental management system, including its significant environmental aspects, environmental performance and compliance obligations. The communication process is seen as a two-way process, in and out of the organization.

The information received by the organization may contain requests from interested parties for specific information related to the management of its environmental aspects, and also general impressions or views on the way the organization carries out that management. These views can be either positive or negative in nature. In the latter case (e.g. complaints), it is important a prompt and clear answer is provided by the organization. A subsequent analysis of these complaints can provide valuable information for detecting improvement opportunities for the environmental management system.

In determining how it will communicate, the organization should consider:

a) methods, including verbal or written;

b) tools, including internet, letter, video or reports;

c) who communicates.

Communication should be:
1005 — transparent, so the organization is open to the way it derived what it has reported on;
1006 — appropriate, so that information meets relevant interested parties’ needs, enabling them to participate;
1007 — truthful and not misleading those who rely on the information reported;
1008 — factual, accurate and reliable, ensured by robust systems and procedures;
1009 — complete in its own context and does not exclude relevant information;
1010 — clear and understandable to interested parties.

When planning, the internal organizational structure should be considered to ensure communication with the most appropriate levels and functions. Communication with each person doing work under its control may not be needed; a single approach to the whole organization may be adequate to meet the objectives of its communication.

For additional information on communication see ISO 14063.

A.7.5 Documented information

The intent of 7.5 is to ensure that organizations create and maintain documented information in a manner sufficient to implement the environmental management system. The primary focus of organizations, however, should be on the effective implementation of the environmental management system and on environmental performance, not on a complex documented information control system.

Documented information originally created for purposes other than the environmental management system, may be used. The documented information for the environmental management system may be integrated with other information management systems implemented by the organization. It does not have to be in the form of a manual.

A.8 Operation

A.8.1 Operational planning and control

The types and degrees of operational control depend on the nature of the operations, the significant environmental aspects, risk associated with threats and opportunities, and compliance obligations. An organization has the flexibility to select the type(s) of operational control methods, singly or in combination, necessary to make sure a process is effective in achieving the desired results. Such methods may include:

a) designing a process in such a way to prevent error and ensure consistent results;

b) using technology to control processes and prevent adverse results (i.e., engineered controls);

c) using competent personnel to assure desired results;

d) performing the process in a specified way (i.e., procedure);

e) monitoring or measuring the process to check the results;

f) determining the use and amount of documented information necessary.

Work that is ‘under the organization’s control’ is work that takes place within the scope of the environmental management system.
The organization decides the extent of control needed within its own business processes (e.g., procurement process) to control or influence outsourced processes (see explanation below) or suppliers of products and services, based upon factors such as:

- knowledge, competence and resources, including:
  - the competence of the supplier to meet the requirements of the organization's environmental management system;
  - the technical competence of the organization to define appropriate controls or assess the adequacy of controls;
  - the importance and potential impact on the organization's capability to provide products and services that conform to the intended outcomes of the environmental management system, including the risk of deviation from its environmental policy, objectives, and compliance obligations;
  - the degree to which the control for the process is shared;
  - the capability of achieving the necessary control through the application of its general procurement process;
  - opportunities available.

In the case of work performed via outsourced processes (see explanation below) or supplied products and services, the organization's ability to exert control or influence will vary, from direct control to limited or no influence. For example, an outsourced process performed onsite may be under the direct control of a large organization. Alternatively, the ability of small and medium size organizations to influence an outsourced process or supplier may be limited by their relative size.

An outsourced process is one which:

- the function or process is integral to the organization's functioning;
- the function or process is needed for the management system to achieve its intended outcome;
- liability for the function or process conforming to requirements is retained by the organization; and
- the organization and the external provider have an integral relationship e.g. one where the process is perceived by interested parties as being carried out by the organization.

**A.8.2 Emergency preparedness and response**

This International Standard does not contain explanatory information on 8.2.

**A.9 Performance evaluation**

**A.9.1 Monitoring, measurement, analysis and evaluation**

**A.9.1.1 General**

In order to ensure that its environmental policy and environmental objectives are achieved, the organization should ensure that:

a) the results of monitoring and measurement are reliable, reproducible and traceable;

b) the way in which data resulting from monitoring and measurement are aggregated before any analysis and evaluation takes place is clearly defined and reproducible;
c) the findings of analysis and evaluation of environmental performance are reported internally to those with responsibility and authority to initiate appropriate action;

d) the information obtained is communicated externally in accordance with compliance obligations.

A.9.1.2 Evaluation of compliance

The frequency and timing of evaluations of compliance may vary depending on the importance of the requirement, variations in operating conditions and the organization’s past performance, however all compliance obligations need to be evaluated.

An organization can use a variety of methods to maintain its knowledge and understanding of its compliance status, including:

a) facility tours or inspections;

b) direct observations or interviews;

c) project or work reviews;

d) review of sample analyses or test results, and comparison to regulatory limits;

e) verification sampling or testing.

In the event that the results indicate a failure to meet a legal requirement, the organization should determine and implement the actions necessary to achieve compliance. This may require communication with a regulatory agency and agreement on a course of action to re-establish compliance with legal requirements. Where such an agreement is in place, this becomes a compliance obligation.

A non-compliance may not rise to the level of a system nonconformity if, for example, it is identified and corrected by the environmental management system processes. Further, compliance-related system non-conformities that are detected must be corrected, even if those nonconformities have not resulted in actual non-compliance with legal requirements.

A.9.2 Internal audit

The management and conduct of internal audits should abide by the principles of integrity, fair presentation, due professional care, confidentiality, independence and an evidence-based approach.

Auditors should be independent of the activity being audited, wherever practicable, and should in all cases act in a manner that is free from bias and conflict of interest.

The extent of the audit programme should be based on the size and nature of the organization, as well as the complexity and level of maturity of the environmental management system.

When considering the environmental importance of the processes concerned in its audit programme, the organization should include:

a) the plans made and actions taken to address the organization’s significant environmental aspects and compliance obligations;

b) the outputs of its monitoring and measurement processes;

c) previous occurrences of accidents or emergency situations that resulted in or could have resulted in environmental impacts.

When considering the results of previous audits, the organization should include:
— previously identified nonconformities and the effectiveness of the actions taken;

— results of internal and external audits.

Guidance on establishing an internal audit programme, performing environmental management system audits and evaluating the competence of audit personnel is given in ISO 19011.

A.9.3 Management review

The management review should be high-level; it does not need to be an exhaustive review of the details.

The management review topics need not be addressed all at once; the review may take place over a period of time.

It should be noted that communication(s) from external interested parties include complaints. Therefore, the information submitted for analysis to top management should include the relevant complaints received from interested parties, which may provide direct information that will allow top management to determine opportunities for improvement.

A.10 Improvement

A.10.1 Nonconformity and corrective action

Documented information may include the corrective action taken, the results of corrective action and information on the review of the effectiveness of those actions.

There is no longer a single clause with specific requirements for ‘preventive action’ because one of the key purposes of an environmental management system is to act as a preventive tool. This concept is now captured in 4.1 (i.e., Understanding the organization and its context) and 6.1 (i.e., Actions to address risk associated with threats and opportunities). In combination, these two sets of requirements are considered to cover the concept of preventive action.

A.10.2 Continual improvement

The rate, extent and timescale of actions that support continual improvement are determined by the organization. Although there may be value in improving the system elements alone, the intended outcome of planned actions and other system changes is an enhancement in the environmental performance of the organization.
Correspondence between ISO/DIS 14001:2014 and ISO 14001:2004

Table B.1 — Correspondence between ISO/DIS 14001:2014 and ISO 14001:2004

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Table B.2 — Correspondence between ISO 14001:2004 and ISO/DIS 14001:2014

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**Annex C**  
(informative)

**Alphabetical index of terms in Clause 3**

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The list in this Annex will be ordered according to the alphabetical order in the language into which this International Standard is translated.
Bibliography

1191 ISO 14004, Environmental management systems — General guidelines on principles, systems and support techniques
1192 ISO 14031, Environmental management — Environmental performance evaluation — Guidelines
1193 ISO 14044, Environmental management — Life cycle assessment — Requirements and guidelines
1194 ISO 14063, Environmental management — Environmental communication — Guidelines and examples
1195 ISO 19011, Guidelines for auditing management systems