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Environmental management systems — Guidelines for using ISO 14001 to address environmental aspects and conditions within an environmental topic area —

Part 2: **Water**

Systèmes de management environnemental — Lignes directrices pour l'utilisation de l'ISO 14001 afin de prendre en compte les conditions et aspects environnementaux dans le cadre d'une thématique environnementale donnée —

Partie 2: Eau

Reference number
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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 document 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 207, *Environmental management*, Subcommittee SC 1, *Environmental management systems*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS S26, *Environmental management*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 14002 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

0.1 Background

Water is a vital element for the functioning of all living systems on earth and therefore also for human life and well-being. Ecosystems and related biodiversity, also seen as natural capital, can only deliver their multiple values and provide their natural services when appropriately preserved, their resilience maintained, and the respective planetary boundaries respected by economy and society. Protection of water resources is an integral part of sustainable development and is essential for achieving the United Nations' Sustainable Development Goals (SDGs)[25], specifically SDG 6 (clean water and sanitation) and SDG 14 (life below water). Furthermore, protection of water resources has an indirect impact on other goals, such as SDG 2 (zero hunger), SDG12 (responsible consumption and production), SDG13 (climate action) and SDG15 (life on land).

Many organizations apply the general ISO 14001 framework to manage their interactions with the environment. This document provides guidance and examples focused on applying the ISO 14001 framework to address water-related environmental aspects and impacts, as well as water-related environmental conditions and dependencies on water that can have an effect on the organization. It supports organizations to plan action(s) in relation to environmental impacts, and to water dependencies and vulnerabilities at their site(s), in the watershed, and in the life cycle of their products and services. This includes strategic planning and taking actions in relation to:

— protecting aquatic ecosystems and ecosystem services as well as related ecosystems contributing to water balance (e.g. forests);

— protecting water supplies and ensuring water availability;

— minimizing the use of water and water consumption;

— protecting and enhancing water quality;

— adapting and responding to water-related environmental conditions, such as seawater rise, changing precipitation patterns, or gradual changes in water availability and quality;

— preparing for foreseeable water-related events, such as flooding and droughts.

This document is designed for compatibility with other standards related to sustainable use and protection of water resources. It is based on ISO 14002-1 and follows the same approach and order as ISO 14001 but does not address every subclause.

0.2 Risk-based approach

The document refers to water-related environmental aspects, environmental impacts, environmental conditions, and the associated water-related risks and opportunities, including those across the life cycle of an organization's products and services, where appropriate. This document enables organizations to address:

— actual and potential adverse or beneficial impacts on water resources and aquatic ecosystems, originating from their activities or their supply chains;

— actual and potential effects on the organization itself, including risks and opportunities related to the dependency on water.

Potential effects on the organization can include acute and chronic physical threats (e.g. from extreme events such as the flooding of an organization's premises, or the accumulation of pollution in an organization's water supply) as well as transitional risks and opportunities related to changes in regulations, technology, the market, or to the organization's reputation, and opportunities for contributions to sustainable development from a life cycle perspective.

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The magnitude of water-related risks and opportunities is influenced by various context-related factors (e.g. climatic, geographical, ecological, socio-economic, water footprint of the organization, applicable compliance obligations), including:

— an organization's vulnerability to water scarcity, water quality, changes in ecosystem services, flooding, and climate change;

— the condition or quality of water bodies or aquatic ecosystems an organization has or can have an impact on, or depends upon;

— increasing competition for water use or conflict over safe access to water resources in a particular location;

— the condition of infrastructures, including water supply, distribution systems and wastewater treatment.

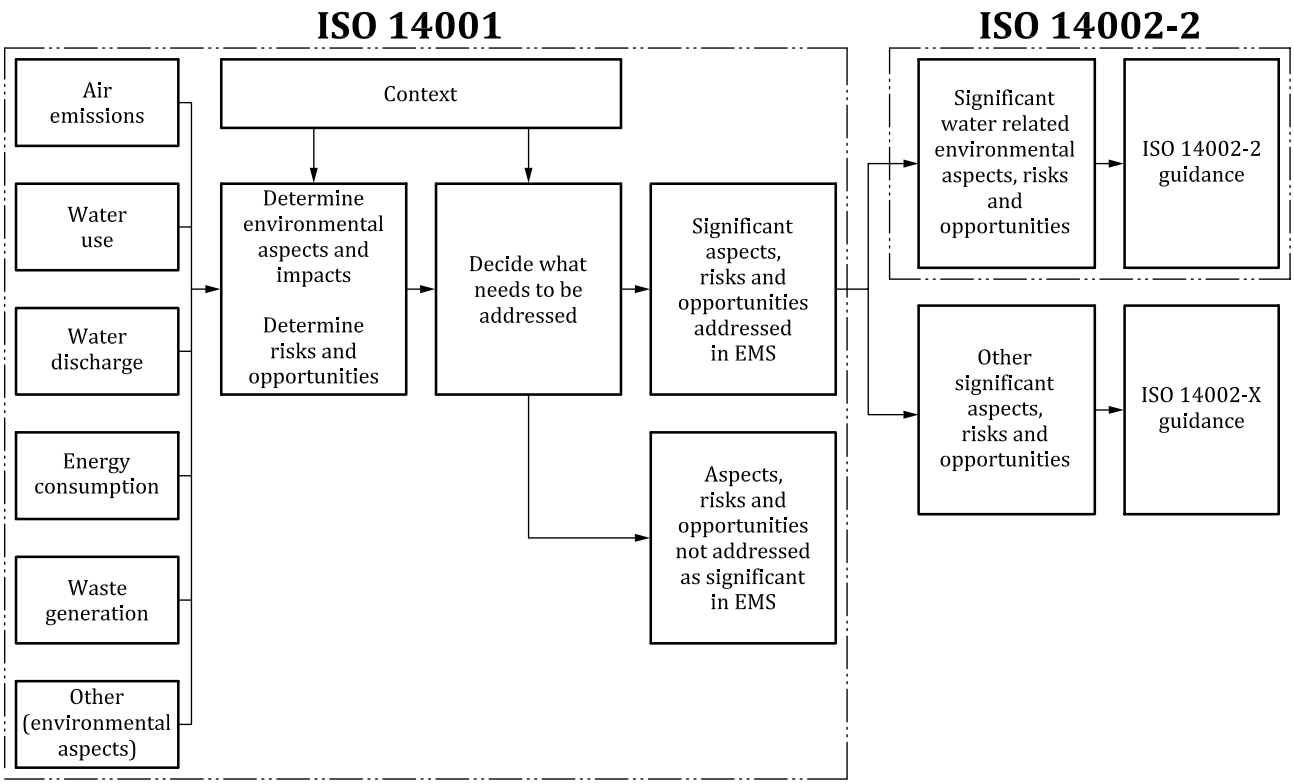
0.3 Holistic approach to the management of water

An environmental management system according to ISO 14001 requires an organization to evaluate its activities, products and services in order to determine its significant environmental aspects and environmental conditions affecting the organization, as well as relevant risks and opportunities that need to be addressed. This process involves applying a life cycle perspective as part of a comprehensive evaluation of the various impacts an organization can have on the environment and how it depends on it.

An organization that intends to focus its environmental management efforts on water should recognize the interrelations of water with other environmental media and respective ecosystems. It should be aware that the actions it plans and implements to improve water quality or availability can incur adverse impacts on other environmental media like soil and air, or impacts on terrestrial ecosystems. For example, aeration basins or ponds used in wastewater treatment can emit volatile organic compounds to air, and taking action to enhance biodegradation of trichloroethylene in contaminated groundwater can lead to the formation of intermediates or metabolites such as vinyl chloride that are even more hazardous in the ecosystem, and to humans. To avoid such unintended consequences, this document encourages an organization to take a holistic approach when managing water.

Figure 1 shows how ISO 14001 and the parts of the ISO 14002 series can be applied using a holistic approach.

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Key

EMS environmental management system

Figure 1 — Interaction between ISO 14001 and the ISO 14002 series

0.4 Using this document to address the environmental topic area of water within an environmental management system

An organization can use this document to help determine how best to address the sustainable use and protection of water resources within an environmental management system. This can be related to, for example:

— specific commitment(s) in the organization's environmental policy, e.g. related to prevention of water pollution, efficient use of water, preservation of aquatic ecosystems and related biodiversity, or sustainable use of marine ecosystem services;

— one or more of its significant environmental aspects or compliance obligations related to water use, water conservation, water pollution, aquatic ecosystems and species, ecosystem services, etc.;

— compliance with applicable legal requirements and permits;

— commitments related to an organization's social responsibility;

— specific risks and opportunities that need to be addressed for water-related environmental conditions or with regard to dependencies on water.

0.5 Case studies

The guidance provided in this document includes four case studies of organizations applying the ISO 14001 framework to address water-related environmental aspects and environmental impacts, environmental conditions, and the associated risks and opportunities that need to be addressed. The organizations in these case studies are fictional, and serve as illustrative examples in diverse contexts, including different industry sectors known to have water-related environmental aspects and environmental impacts, and different geographic locations and environmental conditions. These cases

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are provided to illustrate how this document can be applied, with examples from different settings and perspectives, and are not intended as models or templates for applying ISO 14001 or this document.

The first of these cases represents a paper mill and is incorporated in the main body of the document, with examples shown in each clause as appropriate. The other three cases, representing a water utility, a dairy cooperative, and a chemical manufacturing facility, are provided for further reference in Annexes A, B and C. Annex D provides clarification on the usage of some concepts and terminology in this document to enhance user understanding.

0.6 Benefits

The benefits of applying this document can include:

— supporting the fulfilment of compliance obligations related to water withdrawal, water consumption, water quality and public policies;

— enhancing environmental performance and fostering resilient ecosystems by achieving environmental objectives through the management of water-related environmental aspects;

— protecting the environment through prevention or mitigation of adverse impacts on water resources and ecosystems;

— preventing and mitigating water-related business risks and leveraging opportunities in an organization's operations and its supply chain, in response to changing environmental conditions;

— aligning the environmental management system with the organization's strategic direction, e.g. to support specific environmental policy or organizational commitments related to sustainable use and protection of water resources;

— supporting water-related SDGs;

— contributing to compliance with international agreements and conventions related to water as well as the transition to a circular economy (reduction, replacement and reuse of water).

These benefits can also lead to cost reductions, security of supply and production, better relations with relevant interested parties, improved public image, or the maintenance of a social "licence to operate".

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Environmental management systems — Guidelines for using ISO 14001 to address environmental aspects and conditions within an environmental topic area —

Part 2: Water

1 Scope

This document gives general guidelines for organizations seeking to address water-related environmental aspects, environmental impacts, environmental conditions, and the associated risks and opportunities within an environmental management system in accordance with ISO 14001.

The document addresses issues for environmental management related to water quantity and quality, such as water withdrawal, efficient use of water, and water discharge, as well as approaches to cope with water-related events such as flooding and droughts. The document considers the interconnections of water with other environmental media and takes a holistic approach to the management of water due to its impacts on ecosystems, ecosystem services, related biodiversity, as well as human life and well-being.

This document is applicable to organizations irrespective of their size, type, financial resources, location and sector. It is applicable to all types of water and considers a life cycle perspective.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14001, *Environmental management systems — Requirements with guidance for use*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14001 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
environmental topic area
area of interest or concern for environmental management in an organization in relation to its surroundings

[SOURCE: ISO 14002-1:2019, 3.1]

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