



# ISO WHITEPAPER

## HOW TO USE ISO 14090 TO SUPPORT ADAPTATION TO CLIMATE CHANGE IN AN ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM

### **Acknowledgments**

This paper was drafted in 2020 by an Ad-hoc Group chaired by John Dora of the UK,  
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## INTRODUCTION

The climate is changing, and this poses risks and opportunities for many organizations. Climate change is bringing a variety of changes such as different weather patterns, more extreme weather events, sea-level rise, flooding, storm surges, drought, and erosion. Loss of biodiversity, changes in air quality, effects on employee health and safety, disruptions to operations and value chains, and changes to the wider business, political, and regulatory context – these are a few of the possible effects of climate change, which organizations are experiencing to one degree or another and are of importance to many.

The Paris Agreement and the UN Sustainable Development Goals (SDGs) provide direction for organizations to take action to address material environmental aspects and impacts, as well as environmentally-related effects on the organization. Using the ISO 14001 and 14090 framework standards for environmental management systems and adaptation to climate change in combination can help organizations to align with these international initiatives and facilitate integration and management of climate change adaptation.

## ENVIRONMENTAL IMPACTS – MITIGATION AND ADAPTATION

Those already using ISO 14001 Environmental Management Systems (EMS) will know about mitigating climate change, but now adaptation to climate change is recognized as a high priority. Climate change impacts seem to be accelerating, and mitigation efforts will take decades to have a beneficial effect.

ISO 14001 requires consideration of how environmental conditions can affect the organization, within its environmental management system. Now ISO 14090 provides a framework for understanding, responding, and adapting to the effects of climate change.

This ISO White Paper informs users of ISO 14001 about:

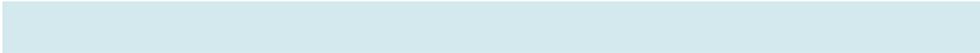
- The benefits of using ISO 14090 alongside ISO 14001;
- How ISO 14090 is structured; and
- Relevant clauses in both standards where ISO 14090 supports an ISO 14001 EMS.

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## **MITIGATION AND ADAPTATION**

**Climate change mitigation relates to actions that limit the extent of climate change. This normally involves minimizing or avoiding greenhouse gas and other emissions that contribute to climate change. It can also involve activities that remove carbon dioxide from the atmosphere.**

**Climate change adaptation is the related process of adjusting to the changing climate and its effects. Climate change adaptation can be incremental or transformational for organizations. Whatever the scope and scale, organizations will be more successful when climate change adaptation is well managed.**



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## ISO 14090 AND ISO 14001

ISO 14090 is an international standard that provides organizations with a practical, structured approach for addressing and adapting to the effects of climate change. It provides a focus on how an organization is affected by climate change, as well as how the organization in its adaptation process must also aim for sustainability and synergy with mitigation of climate change.

ISO 14001 has an emphasis on environmental performance and the impact that an organization can have on the environment. This Standard also requires an organization to consider, and where necessary, take action to address identified risks and opportunities related to its context - including risks and opportunities associated with environmental conditions that can affect the organization. Thus, while an organization's starting point with ISO 14001 may be associated with its impact on the environment, the added value of ISO 14090 is its focus on the effects of climate change on an organization.

Considering that climate change will continue over a long period of time, ISO 14090 provides emphasis on environmental management with regard to climate change adaptation efforts over the short, medium, and long term. This includes considering the timescale associated with the consequences of potential adaptation actions and evaluating adaptation options over the lifespan of these consequences, as well as identifying indicators to measure the evolution of climate effects on the organization over time, and how the organization's capacity for adaptation evolves.

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For ISO 14001 users with climate-related risks and opportunities that need to be addressed, ISO 14090 offers extensive guidance on temporal considerations and management of climate-related change as the organization and environmental context evolve.

ISO 14090 can help an organization to enhance its understanding of climate risk and adaptation, as well as to understand and document the impact of its activities and related improvement measures, in support of the Paris Agreement and the UN Sustainable Development Goals. It has been written in a way that should make it relatively easy for users of ISO 14001 to adopt. Many of the requirements in ISO 14090 can be aligned with actions already being undertaken by organizations that use ISO 14001.

## **WHERE DOES ISO 14090 SUPPORT ISO 14001?**

If your organization implements an EMS, you may benefit from the insights provided in ISO 14090, given the increasing importance for organizations to address climate-related risks and opportunities.

The following table indicates how clauses in ISO 14001 can be supported by parts of ISO 14090, with direct reference to key clauses in each. Notes explain the rationale.

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ISO 14001	Supporting ISO 14090 clause(s)	ISO 14090 - Explanatory Notes
<p><b>4.1 Understanding the organization and its context</b> Requires identification of internal and external issues that could affect the organization’s ability to meet intended outcomes of its environmental management system (EMS) - such issues may include climate or climate-related conditions that can affect the organization, or be affected by its activities.</p> <p>Note: this calls for a conceptual understanding of the important issues, rather than a detailed assessment.</p>	<p>5 Pre-planning</p> <p>6. Assessing climate change impacts including opportunities</p>	<p>Pre-planning involves assessing the capability of the organization to undertake Clauses 6 to 10. The process is relevant when an organization initiates climate change adaptation, and when reassessing or revising its climate change adaptation.</p> <p>Climate change and the impacts of climate change are external issues relevant to the purpose of many organizations. Clause 6 requires an organization to assess how its activities, products and services might be affected by climate change, including slow onset (chronic) impacts as well as sudden (acute) impacts due to extreme events. This can also involve analyzing influencing factors relevant to the organization’s context, such as internal and external policies; organizational strategies; and life cycles of policies, plans and assets.</p>
<p><b>4.2 Understanding the needs and expectations of interested parties</b> Requires identification of the needs and expectations of interested parties that are relevant to the organization’s EMS and determination of those it will comply with, including legal requirements. This can include climate or climate adaptation related needs, expectations and obligations.</p>	<p>5 Pre-planning</p> <p>6. Assessing climate change impacts including opportunities</p>	<p>Pre-planning involves identifying interested parties and how the organization engages with them. Clause 5 provides guidance on potential interested parties with regard to climate change adaptation, as well as benefits of their consultation and participation.</p> <p>Clause 6 requires a comprehensive, cross-cutting (systemic) assessment of climate change impacts on the organization. This can involve analysing various influencing factors, including climate adaptation actions taken by third parties.</p>

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<p><b>4.3 Determining the scope of the environmental management system</b> Requires defining the boundaries within which the EMS applies. For climate change, this could address spatial, temporal and other boundaries that reflect the scope of adaptation.</p>	<p>5 Pre-planning</p> <p>7.4.2 Scope of the plan and boundaries of the system</p>	<p>Pre-planning can also be referred to as scoping, with regard to adaptation efforts and capabilities. It involves an assessment of the organization's capabilities and context relative to climate adaptation, and could be helpful in defining management system boundaries with regard to adaptation activities.</p> <p>Subclause 7.4.2 also requires an organization to identify the boundaries of the organizational system being addressed.</p>
<p><b>4.4 Environmental management system</b> This involves a general, overarching requirement to enhance environmental performance by establishing and continually improving the EMS, in accordance with requirements set out in the rest of the Standard. If an organization identifies climate-related risks or opportunities that need to be addressed, the EMS will need to be designed with this in mind.</p>	<p>6. Assessing climate change impacts including opportunities</p> <p>7 Adaptation planning</p> <p>8 Implementation</p> <p>9 Monitoring and evaluation</p> <p>10 Reporting and Communication</p>	<p>ISO 14090 offers guidance on assessing how an organization's activities, products, and services, including investments and activities along the value chain, might be impacted by climate change, and on planning actions for climate adaptation, which can be incorporated into an EMS to mitigate climate-related risks for the organization and leverage opportunities</p>

<p><b>5 Leadership</b> Specifies how an organization's top management is expected to demonstrate leadership, commitment to, and accountability for the EMS (5.1), and to assign EMS roles and responsibilities within the organization (5.3). This includes roles and accountability for climate action.</p> <p>Requires an organization to establish an environmental policy (5.2) to formally express specific commitments for protection of the environment, relevant to its context. If applicable, this can include commitments related to climate change mitigation and adaptation.</p>	<p>5 Pre-planning 6.3 Assessing adaptive capacity 7 Adaptation planning 7.3 Decision-making 8.1 Leadership and commitment</p> <p>7.1 General 7.2 Policy, strategy and planning context</p>	<p>Leadership and commitment are key components of the adaptive capacity of an organization. They are necessary at all stages from the pre-planning and planning stages to implementation, and transparency with stakeholders regarding performance outcomes. Subclause 8.1 specifies expectations for top management in demonstrating leadership of, commitment to, and accountability for implementing climate adaptation plans.</p> <p>Subclause 7.1 requires an organization to incorporate and embed climate change adaptation into its policies, strategies and plans, and provides guidance in 7.2 on what should be addressed or stated in policies or strategies from a climate adaptation perspective.</p>
<p><b>6. Planning</b> Requires an organization to identify risks and opportunities that it deems necessary to address in its EMS. Sources of risks and opportunities include</p> <ul style="list-style-type: none"> <li>- environmental aspects (6.1.2) - ensuring climate change-related aspects are considered;</li> <li>- applicable legal and other requirements (6.1.3); and</li> </ul>	<p>6 Assessing climate change impacts including opportunities</p> <p>7. Adaptation planning 7.3.2 Identification of</p>	<p>Requires assessment of climate change impacts on the organization, as well as assessment of the organization's capacity to adapt to these impacts.</p> <p>Provides guidance on impact assessment methods, including risk assessment, vulnerability assessment, and thresholds analysis.</p> <p>Provides guidance on identifying opportunities that can arise from climate change and climate adaptation.</p> <p>Requires an organization to establish climate adaptation priorities, identify adaptation actions, develop an adaptation plan, and</p>

<p>- relevant issues, environmental conditions or stakeholder expectations identified in 4.1 and 4.2.</p> <p>For environmental aspects in particular, evaluation criteria must be applied, and this can take the form of a risk assessment.</p> <p>An organization must then plan actions to address these particular risks and opportunities (6.1.4), including setting <b>environmental objectives and plans to achieve them</b>, as well as identifying indicators for monitoring progress (6.2). This can include climate action objectives and plans.</p>	<p>climate change adaptation actions 7.4 Adaptation Plan 8.2 Implementation plan</p>	<p>incorporate adaptation into its policies, strategies, and plans. This includes extensive guidance on (1) identifying and evaluating a range of potential actions assessing them for suitability to the organization's needs and capabilities as well as evaluating their potential impacts, and making informed decisions to select adaptation actions to be taken; and (2) developing the content and objectives of the plan.</p> <p>Clause 7.4 provides guidance on climate change adaptation actions, which can be integrated to address climate-related risks and opportunities. Together with subclause 7.3.2, this includes</p> <ul style="list-style-type: none"> <li>• Soft measures linked to building adaptive capacity, for example, developing new knowledge, embedding climate change into the organization's policies and operational procedures, training, and awareness raising.</li> <li>• Hard measures involve structural approaches, such as infrastructure and/or buildings designed for adaptation; as well as ecosystem-based adaptation, such as flood protection zones, and natural soil surfaces for rainwater management.</li> </ul>
<p><b>7 Support</b> Clause 7 Includes requirements for a range of actions and processes that support implementation of an effective EMS, including planned actions to address identified risks and opportunities or to achieve the environmental objectives, and provision of the necessary resources (7.1).</p>	<p>5.0 Pre-planning 6.1 General</p>	<p>Pre-planning involves assessing, and where necessary establishing, the capability of the organization to undertake Clauses 6 to 10. This can tie in with establishing competency among personnel, in ISO 14001.</p>

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Support actions include determining, and where necessary acquiring, the necessary competence among personnel in order to meet environmental performance objectives and requirements (7.2); ensuring awareness of the EMS and how work activities can affect the environment (7.3); establishing processes for internal and external communication relevant to the EMS (7.4); and control of documented information to ensure it is protected and available when needed (7.5). Support actions can be applied in relation to climate action objectives, climate awareness, and communication, as appropriate.

10 Reporting and communication

Clause 10 provides guidance on external communication and reporting on climate change adaptation. It may also support answering the growing expectations of stakeholders in relation to documenting climate impact or risk reduction.

## 8 Operation

Requires control of operations as needed to meet EMS requirements and implement actions to address identified risks and opportunities - including those related to climate change. This includes establishing operating criteria, implementing controls, and ensuring environmental requirements are communicated and addressed across the product life cycle stages, as appropriate.

7. Adaptation planning  
8.2 Implementation plan  
9 Monitoring and evaluation

Sub-clause 8.2 provides guidance on transforming the climate change adaptation plan into activities.

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<p><b>9 Performance Evaluation</b> Requires monitoring and evaluation of environmental performance, compliance with legal and other requirements, and the adequacy of EMS implementation, as well as management review of the system and changing circumstances in order to inform decisions on actions needed for improvement. This can include consideration of the effects of climate change on the organization, and related decisions on adaptation.</p>	<p>9 Monitoring and evaluation</p>	<p>Clause 9 offers guidance on using monitoring and evaluation to ensure that satisfactory progress on climate change adaptation is confirmed, and that indications of unsatisfactory progress are timely enough to enable the organization to take corrective action.</p>
<p><b>10 Improvement</b> Requires taking action to address opportunities for continual improvement identified in performance evaluation, and to achieve EMS intended outcomes. This can include actions for adapting to climate change.</p>	<p>Introduction 4.3 Flexibility 7 Adaptation planning</p>	<p>The approach of 14090 is iterative, supporting continual learning and improvement processes. The organization is required to adopt an adaptive management approach that enables the capture of new knowledge and learning from the experiences of decision-making to inform future decisions.</p>

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## REFERENCED STANDARDS

ISO 14001:2015

Environmental management systems – Requirements with guidance for use

ISO 14090:2019

Adaptation to climate change – Principles, requirements and guidelines

### **Other related standards**

ISO 14004: 2016

Environmental management systems- General guidelines on implementation

ISO/DIS 14091:2020

Adaptation to climate change – Guidelines on vulnerability, impacts and risk assessment

ISO/TS 14092:2020

Adaptation to climate change – Requirements and guidance on adaptation planning for local governments and communities