## J.7 Hohe Kapazität

Maßnahmen für die wirksame Umsetzung von Entscheidungen, die entweder 1) 30 Jahre in die Zukunft reichen, sofern es keine systemischen Hindernisse für ihre wirksame Umsetzung gibt, oder die 2) 15 Jahre in die Zukunft reichen, deren wirksamer Umsetzung aber äußere systemische Hindernisse entgegenstehen, für deren Bewältigung zusätzliche Anpassungskapazität erforderlich ist. Hohe Kapazität umfasst Maßnahmen ähnlich der mittleren Kapazität (siehe oben), darüber hinaus aber auch Maßnahmen wie z. B., dass

— die Organisation durch Analyse ermittelt hat, an welcher (welchen) Stellen im Verlauf des gesamten Lebenszyklus ihrer technischen Entscheidungen sich der Klimawandel auswirkt,

— die Organisation in Zusammenarbeit mit internen und externen Stakeholdern Maßnahmen zur Verbesserung der physischen Resilienz gegenüber dem Klimawandel priorisiert hat,

— die Finanzplanung (einschließlich Kosten-Nutzen-Analyse) die finanziellen Auswirkungen über den gesamten Lebenszyklus der Entscheidung beurteilt hat,

— Maßnahmen im Einklang mit finanziellen, sozialen, technischen und umweltbezogenen Prioritäten priorisiert wurden,

— quantifizierte Verbesserungsziele in die Pläne einbezogen wurden,

— die Führungspersonen fundierte formelle Aussagen zur Position der Organisation bezüglich der Anpassung an den Klimawandel treffen,

— es formale Rollen auf der höchsten Führungsebene wie auch auf der Ebene des mittleren Managements und der Ausführungsebene für die Umsetzung und Aktualisierung der Pläne gibt,

— die für die Umsetzung der Pläne erforderliche Expertise wurde ermittelt und wirksam eingesetzt,

— die Verfahrensweisen dafür sorgen, dass Korrekturmaßnahmen, sofern erforderlich, wirksam ermittelt und umgesetzt werden,

— Beurteilungen des Schulungsbedarfs durchgeführt und umgesetzt werden, um die Planung und Umsetzung zu unterstützen.

## J.8 Sehr hohe Kapazität

Die Arten von Maßnahmen, die bei der Umsetzung von Entscheidungen wirksam sind, die 1) mehr als 30 Jahre in die Zukunft reichen, unabhängig davon, ob es systemische Hindernisse gibt, oder die 2) bis zu 20 Jahre in die Zukunft reichen, deren wirksamer Umsetzung aber äußere systemische Hindernisse entgegenstehen, für deren Bewältigung zusätzliche Anpassungskapazität notwendig ist. Sehr hohe Kapazität umfasst Maßnahmen ähnlich den für die hohe Kapazität angegebenen (siehe oben), darüber hinaus aber auch Maßnahmen wie z. B., dass

— technische Eingriffe so angelegt sind, dass sie adaptiv sind (z. B. die aktuelle Entscheidung lässt Aufwertungen in der Zukunft für den Fall, dass neue Informationen und Technologien zur Verfügung stehen, zu oder schließt sie mindestens nicht aus),

— die Anpassung an den Klimawandel ein explizites strategisches Kernziel ist, das durch die Strategieaussagen des obersten Leitungsgremiums der Organisation gestützt wird,

— die strategischen Entwicklungs- und Umsetzungsprozesse sicherstellen, dass die mit dem Klima verbundene(n) Vulnerabilität und Chancen in die strategische Entscheidungsfindung einbezogen werden,

— sich Innovationen auf externe praktische Erfahrungen führender Institutionen stützen,

— das Leitungsgremium diese Innovationen verfolgt,

— die Planung die Prioritäten in einem sich verändernden Klima über die gesamte Lebensdauer der Entscheidungen wirksam schützt,

— die für Investitionen notwendige Sorgfaltspflicht integriert auch die Anforderung an die Strategieebene, flexibel zu sein, um mit der mit dem Klima verbundenen Unsicherheit umgehen zu können,

— Anforderungen bezüglich der Anpassung an die Folgen des Klimawandels ermittelt wurden, die von anderen Organisationen in zukünftiger Zusammenarbeit gestellt werden müssen, falls sie die Anpassungskapazität der Organisation in Bezug auf das Erreichen ihrer Anpassungsziele bedrohen.

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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 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, E*nvironmental management*, Subcommittee SC 7, *Greenhouse gas management and related activities*.

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.

## Introduction

Climate change is impacting organizations in various ways and will continue to do so for decades to come. Organizations have a growing need to understand, mitigate and manage climate change risks. Climate change risk assessment is key in this context. For responses to be delivered at the necessary pace and scale, it is important that risk assessment approaches are systematic and replicable, permitting learning within and between assessments as new knowledge, technology and experience arise. This document provides guidelines on approaches to assess climate change-related risks.

Risk assessments improve planning of adaptation to climate change and inform the implementation and monitoring of climate change adaptation activities. Adaptation is usually more effective when initiated at an early stage of project development, and when undertaken as a planned process, rather than in response to experiencing impacts. Better knowledge of climate change risks will make it easier and cheaper to respond.

Climate change risks differ from other risks. Often little can be said about their short- or long-term probability so a conventional risk assessment which uses statistical probabilities can be ineffective. For this reason, various approaches have been developed for assessing climate change risks and this document is a guide to the use of screening level assessments and impact chains. The screening level approach can serve as a stand-alone, simplified risk assessment for a straight forward system at risk or those with a limited budget, or serve as a pre-assessment prior to the use of impact chains. Based on a participatory and inclusive process, impact chains approaches provide an opportunity to address all relevant factors. Both screening level assessments and impact chain assessments allow qualitative and quantitative analysis.

This document is relevant to any organization regardless of size, type and nature. For example, it can help financial institutions with decisions in project financing, companies operating in climate-sensitive business sectors, or local governments developing adaptation strategies.

This document covers risks that result from a changing climate. It does not address risks from the transition to a low carbon economy. This document recognises that climate risks can be threats (downside risks) or opportunities (upside risks).

This document emphasises good documentation and communication of climate change risks; these are essential for all subsequent activities. Risk assessments provide information on identifying adaptation actions and prioritising them. Risk assessments following this document also strengthen planning activities on disaster risk reduction (DRR).

This document can be applied by organizations which want to carry out risk assessments (in the newer sense of the 5th Assessment Report (AR 5) of the Intergovernmental Panel on Climate Change (IPCC)) as well as by organizations which want to carry out vulnerability assessments (in the classical sense of IPCC AR4). However, it uses risk assessment as the central term.

This document belongs to an emerging family of standards on adaptation to climate change under the umbrella of ISO 14090 “Adaptation to climate change — Principles, requirements and guidelines”. ISO 14090 describes the following elements of climate change adaptation:

— pre-planning;

— assessing impacts including opportunities;

— adaptation planning;

— implementation;

— monitoring and evaluation; and

— reporting and communication.

This document is part of the second list item above on ‘assessing impacts including opportunities’. ISO/AWI TS 14092 helps define adaptation planning for organizations, local governments and communities. Other ISO standards also deal with climate change or are in some way linked to ISO 14091. For example, ISO 31000 is an excellent companion because it can help organizations manage the risks that are identified and assessed in ISO 14091, which itself is a specialized expansion of the limited risk assessment portion of ISO 31000. ISO 14001 allows for integration of climate change adaptation in an environmental management system; ISO 14091 provides additional information to support this.

ISO 14091 is a guidance document for people working in the field of climate change. It is not meant to serve for certification.

The document is structured starting with an introduction to the concept of climate change risk assessment, followed by the preparation, the implementation and the documentation and communication of the climate change risk assessment.

The guidelines provided in this document are accompanied by a Bibliography and 10 Annexes with supporting examples and information.

In this document, the following verbal forms are used:

— “should” indicates a recommendation;

— “may” indicates a permission;

— “can” indicates possibility or capability.

# Adaptation to Climate Change — Guidelines on vulnerability, impacts and risk assessment

## 1 Scope

This document provides guidance for assessing the risks related to the potential impacts of climate change. It describes how to understand vulnerability and how to develop and implement a sound risk assessment in the context of climate change. It can be used for assessing both present and future climate change risks.

Risk assessment according to this document provides a basis for climate change adaptation planning, implementation, and monitoring and evaluation for any organization, regardless of size, type and nature.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

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

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

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

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

**3.1**
**organization**
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

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.

[SOURCE: ISO 14001:2015, 3.1.4]

**3.2**
**interested party**
person or *organization* that can affect, be affected by, or perceive itself to be affected by a decision or activity

EXAMPLE Customers, communities, suppliers, regulators, non-governmental organizations, investors, employees and academia.

Note 1 to entry: To “perceive itself to be affected” means the perception has been made known to the organization.

[SOURCE: ISO 14001:2015, 3.1.6, modified EXAMPLE]