International Standard

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Climate change adaptation — Requirements and guidance on adaptation planning for local governments and communities

Adaptation au changement climatique — Exigences et recommandations relatives à la planification de l'adaptation pour les autorités locales et les communautés

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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 7, *Greenhouse gas and climate change management and related activities*.

This first edition cancels and replaces ISO/TS 14092:2020, which has been technically revised.

The main changes are as follows:

— guidance on climate change adaptation has been added in Annex D;

— the information has been updated throughout to reflect the current situation.

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

Preparing for risks posed by climate change and planning for adaptation at local government and community levels are essential for the safety and security of society, as well as for its economic, environmental and social well-being. Changes in the climate, often reflected by floods, heatwaves, droughts, coastal erosion and other impacts that have been identified across the globe, pose threats to people's lives, property and economic well-being, and to ecosystems. The United Nations (UN) Intergovernmental Panel on Climate Change (IPCC) has projected that global warming from past anthropogenic emissions will persist for centuries to millennia and will continue to cause further long-term changes in the climate system such as sea-level rise, with associated impacts.[25]

This document provides guidance for local governments and communities on how to prepare for such threats and the associated risks. It recognizes that the impacts posed by climate change vary widely from region to region, and directly affect communities' well-being and local governments including the public services they offer, as well as the safety and security of individuals within their jurisdiction. It is the responsibility of local governments and communities to provide leadership in planning and preparing to manage these risks.

This document also describes how to develop an adaptation plan at the local government and community levels. The planning process details why and how to establish an appropriate (well-structured and collaborative) governance structure and the elements of the adaptation planning and implementation processes. These details include establishing a facilitation team, assessing risks and developing an effective plan, and importantly, monitoring the progress of adaptation implementation and evaluating its achievement with the aim of improving the plan. The step-by-step process presented enables the local adaptation plan to be tailored to suit the climatic, environmental and societal conditions in each case. Applying this document will lead to developing a robust, effective adaptation plan that can be implemented, promoting appropriate climate action today and in the future.

The following two standards are important and interrelated to this document:

— ISO 14091 gives guidelines 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 in accordance with ISO 14091 provides a basis for climate change adaptation planning, implementation, and monitoring and evaluation for any organization, regardless of size, type and nature. ISO 14091 should be referred to in order to accommodate various user situations and conditions.

— ISO 14093 establishes an approach and methodology for a country-based mechanism to channel climate finance to subnational authorities to support climate change adaptation and to increase local resilience thereby contributing to the achievement of the goals of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) and the UN Sustainable Development Goals (SDGs). The country-based mechanism uses performance-based climate resilience grants (PBCRGs) which ensure programming and verification of climate change expenditures at the local level, offering strong incentives for performance improvements in enhanced resilience. ISO 14093 provides requirements and guidelines and is applicable to organizations such as national and subnational authorities, donors, companies, financial institutions and international organizations that are involved in implementing a country-based mechanism for channelling climate finance to subnational authorities to support climate change adaptation and resilience. ISO 14093 should be referred to appropriately to manage climate funds, etc.

It is important to note that the climate is changing, and planning and implementing adaptation is a continuous learning and improvement process that requires sustained attention and action. This document is designed to help local governments and communities in taking initial action to create a safe, socially and economically secure and sustainable society that is resilient to the current and future impacts of climate change.

The framework is designed in accordance with ISO 14090:2019. This framework is given in Figure 1.

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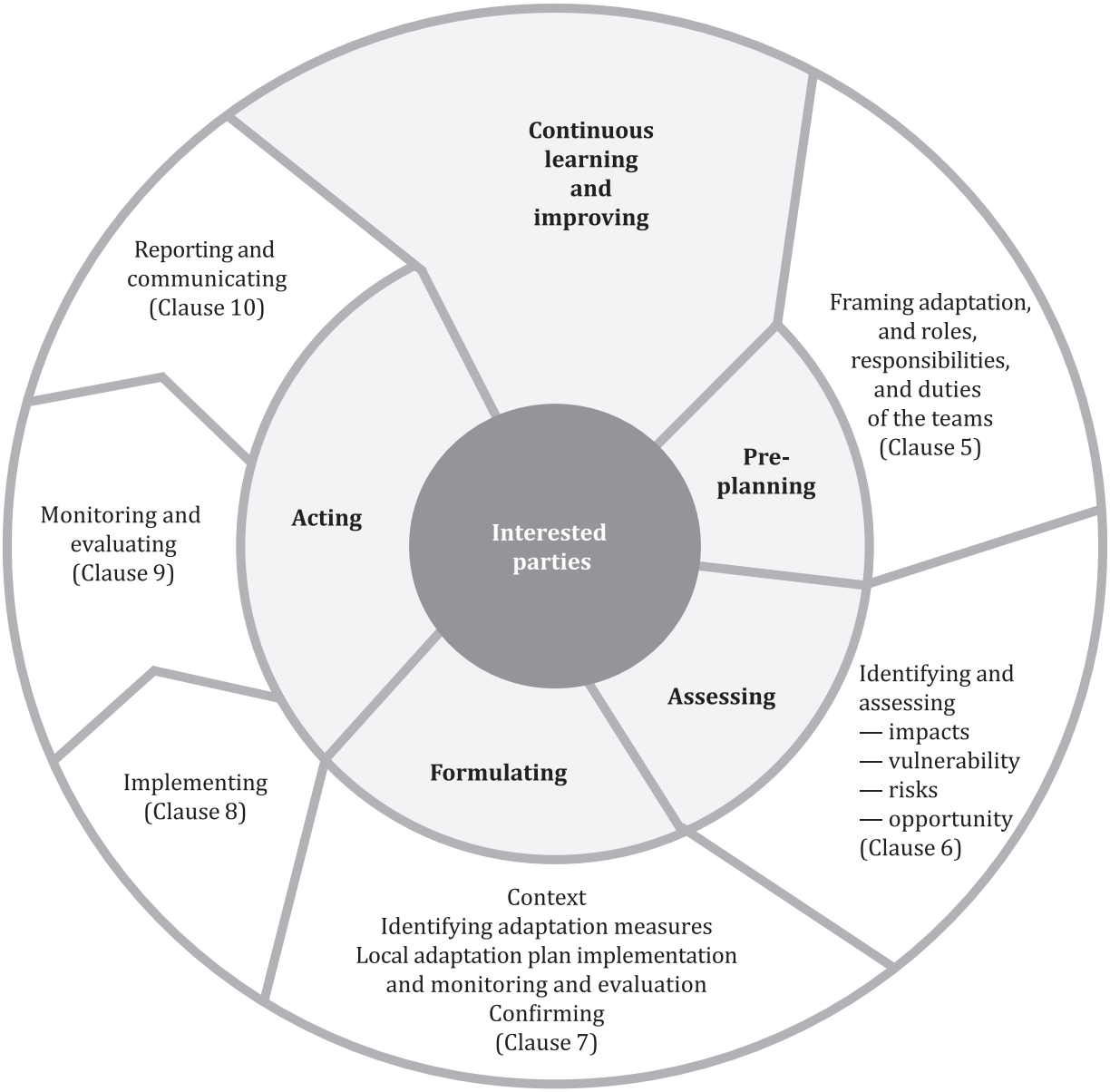


Figure 1 — Logical framework of this document

While the perspective of more vulnerable regions regarding climate change adaptation can be recognized as an important perspective, it has not been incorporated into this document. The local government and community should establish, implement and maintain an adaptation policy with consideration for vulnerable communities, including social and economic aspects in addition to climate risks in the right context.

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Climate change adaptation — Requirements and guidance on adaptation planning for local governments and communities

1 Scope

This document specifies requirements and gives guidance on adaptation planning for local governments and communities.

This document supports local governments and communities in adapting to climate change based on vulnerability, impacts and risk assessments. In working with relevant interested parties, it also supports the setting of priorities, and the development and subsequent updating of an adaptation plan.

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 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
climate change adaptation
adaptation to climate change
process of adjustment to actual or expected *climate* (3.3) and its effects

Note 1 to entry: In human systems, adaptation seeks to moderate or avoid harm, or exploit beneficial opportunities.

Note 2 to entry: In some natural systems, human intervention can facilitate adjustment to expected climate and its effects.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — "to climate change" added to the term. Admitted term added.]

3.2
adaptive capacity
ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities or to respond to consequences

Note 1 to entry: Coping capacity is the ability of people, *organizations* (3.16), and systems, using available skills, resources, and opportunities, to address, manage, and overcome adverse conditions.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Note 1 to entry added.]

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3.3
climate
statistical description of weather in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years

Note 1 to entry: The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization.

Note 2 to entry: The relevant quantities are most often surface variables such as temperature, precipitation and wind.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Rigorous definition of climate in a narrow sense used.]

3.4
climate change
change in *climate* (3.3) that persists for an extended period, typically decades or longer

Note 1 to entry: Climate change can be identified by such means as statistical tests (e.g. on changes in the mean, variability).

Note 2 to entry: Climate change can be due to natural processes, internal to the climate system, or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Text reorganized and revised.]

3.5
climate projection
simulated response of the *climate* (3.3) system to a scenario of future emission or concentration of greenhouse gases and aerosols, generally derived using climate models

Note 1 to entry: Climate projections are distinguished from climate predictions in order to emphasize that climate projections depend upon the emission/concentration/radiative forcing scenario used, which are based on assumptions concerning, for example, future socioeconomic and technological developments that can be, but are not always, realized.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Note 1 to entry revised.]

3.6
climate scenario
plausible and often simplified representation of the future *climate* (3.3), based on an internally consistent set of climatological relationships that has been constructed for explicit use in investigating the potential consequences of anthropogenic *climate change* (3.4)

Note 1 to entry: Climate scenario often serves as input to *impact* (3.10) models.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Last sentence about climate projections deleted.]

3.7
community
group of people with an arrangement of responsibilities, activities, relationships and with common interests in the *impacts* (3.10) of *climate change* (3.4)

Note 1 to entry: A community can also be an *organization* (3.16) or institute (e.g. hospital, school, volunteer group, etc.) or a group of people living or working in the same place or having a particular characteristic in common.

3.8
exposure
presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that can be affected

Note 1 to entry: Exposure can change over time (e.g. as a result of urban development and land-use change).

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[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — "adversely" deleted from before "affected" in the definition. Note 1 to entry added.]

3.9
hazard
potential source of harm

Note 1 to entry: The potential for harm can be in terms of loss of life, injury or other health *impacts* (3.10), as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.

Note 2 to entry: In this document, the term usually refers to climate-related physical events or trends or their physical impacts.

Note 3 to entry: Hazard comprises slow-onset developments (e.g. rising temperatures over the long term) as well as rapidly developing climatic extremes (e.g. heatwave, landslide) or increased variability.

[SOURCE: ISO/IEC Guide 51:2014, 3.2, modified —Notes 1 and 2 to entry added to reflect the definition of "hazard" in IPCC, 2014[24],' Annex II: Glossary. Note 3 to entry added.]

3.10
impact
effect on natural and human systems

Note 1 to entry: In the context of *climate change* (3.4), the term "impact" is used primarily to refer to the effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services and infrastructure due to the interaction of climate change or hazardous climate events occurring within a specific time period and the *vulnerability* (3.19) of an exposed society or system. Impacts are also referred to as "consequences" and "outcomes". The impacts of climate change on geophysical systems, including floods, droughts and sea level rise, are a subset of impacts called "physical impacts".

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Term changed to singular form.]

3.11
indicator
quantitative, qualitative or binary variable that can be measured or described, in response to a defined criterion

[SOURCE: ISO 13065:2015, 3.27]

3.12
interested party
person or *organization* (3.16) that can affect, be affected by, or perceive itself to be affected by a decision or activity

Note 1 to entry: Customers, *communities* (3.7), suppliers, regulators, non-governmental organizations, investors and employees.

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

[SOURCE: ISO 14001:—,[1)] 3.1.7]

3.13
local adaptation plan
plan of action identifying and addressing the *impacts* (3.10) of *climate change* (3.4) in the area of responsibility of a *local government* (3.14) or *community* (3.7)

Note 1 to entry: Such plan of action may contain priorities and planned activities for identifying and addressing the impacts of climate change, including those associated with climate variability and extremes. It may include a mix of policies, projects, programmes and measures which are updated periodically.

1) Under preparation. Stage at the time of publication: ISO/FDIS 14001:2025.

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3.14
local government
administration of states, provinces, etc. (large local governments), which are subordinate to the major political unit and national government, as well as counties, districts, cities, towns, etc. (small local governments), which are subordinate to states and provinces, and the services they provide

3.15
national adaptation plan
national document containing adaptation priorities and planned activities (policies, projects and programmes) including an implementation strategy for a given period (e.g. three to five years)

Note 1 to entry: It was agreed in 2010 under the United Nations Framework Convention on Climate Change (UNFCCC) that Parties would formulate and implement national adaptation plans, as a means that enables them to identify their medium- and long-term adaptation needs and to implement strategies and programmes to address those needs.

[SOURCE: United Nations Framework Convention on Climate Change, 2012,[35] 5.4, modified — Note 1 to entry.]

3.16
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

Note 2 to entry: If the organization is part of a larger entity, the term "organization" refers only to the part of the larger entity that is within the scope of the environmental management system.

[SOURCE: ISO 14001:—, 3.1.5]

3.17
risk
effect of uncertainty

Note 1 to entry: An effect is a deviation from the expected. It can be positive, negative or both. An effect can arise as a result of a response, or failure to respond, to an opportunity or to a threat related to achieving defined objectives.

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" and "consequences", 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" of occurrence.

3.18
sensitivity
degree to which a system or species is affected, either adversely or beneficially, by *climate* (3.3) variability or change

Note 1 to entry: The effect may be direct (e.g. a change in the health and functioning of green infrastructure in response to a change in the mean, range or variability of temperature) or indirect (e.g. damages caused by an increase in the frequency of coastal flooding due to sea level rise).

[SOURCE: IPCC, 2014[24], Annex II: Glossary]

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3.19
vulnerability
propensity or predisposition to be adversely affected

Note 1 to entry: Vulnerability encompasses a variety of concepts and elements including *sensitivity* (3.18) or susceptibility to harm and lack of capacity to cope and adapt.

Note 2 to entry: Vulnerability is the degree to which an ecological, social and economic system is susceptible to, or unable to cope with, adverse *climate change* (3.4)*impacts* (3.10), including *climate* (3.3) variability and extremes.

[SOURCE: IPCC, 2014[24], Annex II: Glossary, modified — Note 2 to entry added.]

3.20
maladaptation
actions intended to contribute to *climate change adaptation* (3.1), but which can lead to increased *risk* (3.17) of adverse climate-related outcomes, increased *vulnerability* (3.19) to *climate change* (3.4), or diminished welfare, now or in the future

[SOURCE: ISO 14093:2022, 3.1.3.9]

4 Principles

4.1 Accountability

The local government and community acknowledge and assume responsibility to address and plan for their climate change adaptation, recognizing the roles of higher levels government, etc. They accept appropriate scrutiny from authorized agencies or parties, and also accept a duty to respond to this scrutiny.

NOTE 1 This principle refers to ISO 14090:2019, 4.11.

NOTE 2 The community acknowledges its role in collaborating with local government in adaptation activity.

4.2 Continuous learning and improvement

Continuous learning and improvement is fundamental for climate change adaptation where there are uncertainties in knowledge, but also continuous changes in the drivers of change, the knowledge and evidence available, and the context within which the responses are to be identified and implemented.

4.3 Flexibility

Explore various measures to meet goals and objectives by taking technical, social, administrative, political, legal, environmental and economic circumstances into account to accommodate a wide range of data availabilities and technical and institutional capacities.

4.4 Mainstreaming and embedding

Climate change adaptation is most effective when it is integrated into the local government's and community's operations (e.g. policies, plans, procedures, risk management, implementation).

NOTE 1 This principle refers to ISO 14090:2019, 4.4.

NOTE 2 A community's understanding and endorsement of this integration is essential to success.

4.5 Practicality

Set goals and objectives to be practical and achievable. Impractical goals can prevent climate change adaptation from achieving or effectively achieving the desired benefits. Focus on indicators/metrics that are relatively easy to measure and where the underlying data are available. Aggregate and compare them across scales so as not to put in place additional burdens.

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