TECHNICAL SPECIFICATION

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

PROOF/ÉPREUVE

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Foreword

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This document was prepared by Technical Committee ISO/TC 207, *Environmental 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.

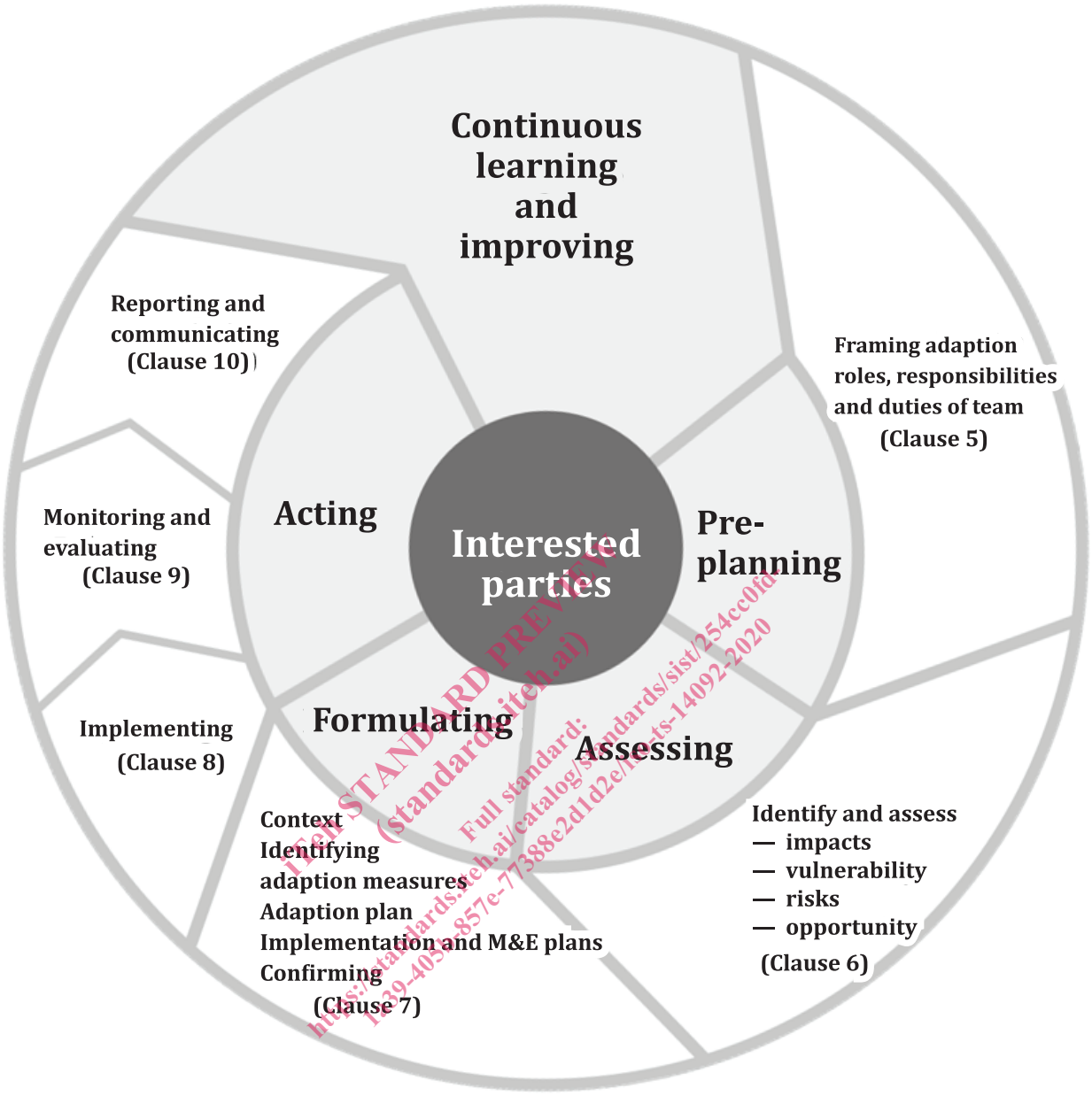
Introduction

Preparing for risks posed by climate change and planning for adaptation at local government and community levels is essential for the safety and security of society, as well as for its economic, environmental and social well-being. Changes in the climate are often reflected by floods, heatwaves, droughts, coastal erosion and other impacts that have been identified across the globe, which pose threats to life, property, economic well-being and to ecosystems. The 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.

This document presents guidance for local governments and communities on how to prepare for such threats and the associated risks. The document 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, monitoring the progress of adaptation implementation and evaluating its achievement with the aim of improving the plan. The step-by-step process presented enables tailoring of the local adaptation plan to suit the climate, environmental and societal conditions in each case. Following this document will lead to developing a robust, effective adaptation plan that can be implemented, promoting appropriate climate action today and in the future.

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



NOTE The graph is designed to be interpreted clockwise.

Figure 1 — Logical framework of this document

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

1 Scope

This document specifies requirements and 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 terminological databases for use in standardization at the following addresses:

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

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

3.1
adaptation to climate change
climate change adaptation
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: ISO 14090:2019, 3.1]

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 defined as the ability of people, *organizations* (3.17), and systems, using available skills, resources, and opportunities, to address, manage, and overcome adverse conditions.

[SOURCE: ISO 14090:2019, 3.2, modified — Note 1 to entry has been added.]

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 near-surface variables such as temperature, precipitation, and wind.

[SOURCE: ISO 14090:2019, 3.4]

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 might 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: ISO 14090:2019, 3.5]

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 may or may not be realized.

[SOURCE: Adapted from IPCC, 2014]

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: Adapted from IPCC, 2014]

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

Note 1 to entry: A community can also be an *organization* (3.17) or institute (i.e. hospital, school, volunteer group, etc.) comprised of 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 could be affected

Note 1 to entry: Exposure can change over time, for example as a result of urban development and land use change.

[SOURCE: ISO 14090:2019, 3.6, modified — Note 1 to entry has been modified.]

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. a heatwave or a landslide) or increased variability.

[SOURCE: ISO 14090:2019, 3.7]

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* (3.9) climate events occurring within a specific time period and the *vulnerability* (3.21) 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: ISO 14090:2019, 3.8]

3.11
incremental change
small adjustments made towards a targeted result

3.12
indicator
quantitative, qualitative or binary variable that can be measured or described, in response to a defined criterion

[SOURCE: ISO 13065:2015, 3.27]

3.13
interested party
person or *organization* (3.17) that can affect, be affected by, or perceive itself to be affected by a decision or activity

EXAMPLE *Communities* (3.7), citizens, suppliers, customers, 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 has been modified.]

3.14
local adaptation plan
action plan identifying and addressing the *impacts* (3.10) of *climate change* (3.4) in the area of responsibility of a *local government* (3.15) 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.

3.15
local government
administration of a specific local area constituting a subdivision of a major political unit (such as a nation or state), and the services they provide (i.e. state, prefecture, province, county, district, city, town, etc.)

3.16
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. 3 to 5 years)

Note 1 to entry: The main output of the process to formulate and implement national adaptation plans (NAPs) established under the UNFCCC in 2010 as a means to enable Parties to identify medium- and long-term adaptation needs and develop and implement strategies and programmes to address those needs.

[SOURCE: United Nations Framework Convention on Climate Change, 2017]

3.17
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]

3.18
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” (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.

[SOURCE: ISO 14001:2015, 3.2.10, modified — Note 1 to entry has been modified.]

3.19
sensitivity
degree to which a system or species is affected, either adversely or beneficially, by *climate* (3.3) variability or *climate change* (3.4)

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: Adapted from IPCC, 2014]

3.20
transformation
change in the fundamental attributes of natural and human systems

[SOURCE: ISO 14090:2019, 3.14]

3.21
vulnerability
propensity or predisposition to be adversely affected

Note 1 to entry: Vulnerability encompasses a variety of concepts and elements including *sensitivity* (3.19) 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: ISO 14090:2019, 3.15, modified — Note 2 to entry has been added.]

4 Principles

4.1 Accountability

The local government and community acknowledge and assume responsibility for their climate change adaptation. They accept appropriate scrutiny, and also accept a duty to respond to this scrutiny.

NOTE 1 This principal refers to ISO 14090.

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

4.2 Continual learning and improvement

Continual learning and improvement are fundamental for climate change adaptation where there are uncertainties in knowledge, but also continual 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

Allow 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 (such as policies, plans, procedures, risk management and implementation).

NOTE 1 This principal refers to ISO 14090.