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**Adaptation to climate change —  
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 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](http://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](http://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](http://www.iso.org/iso/foreword.html).

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](http://www.iso.org/members.html).

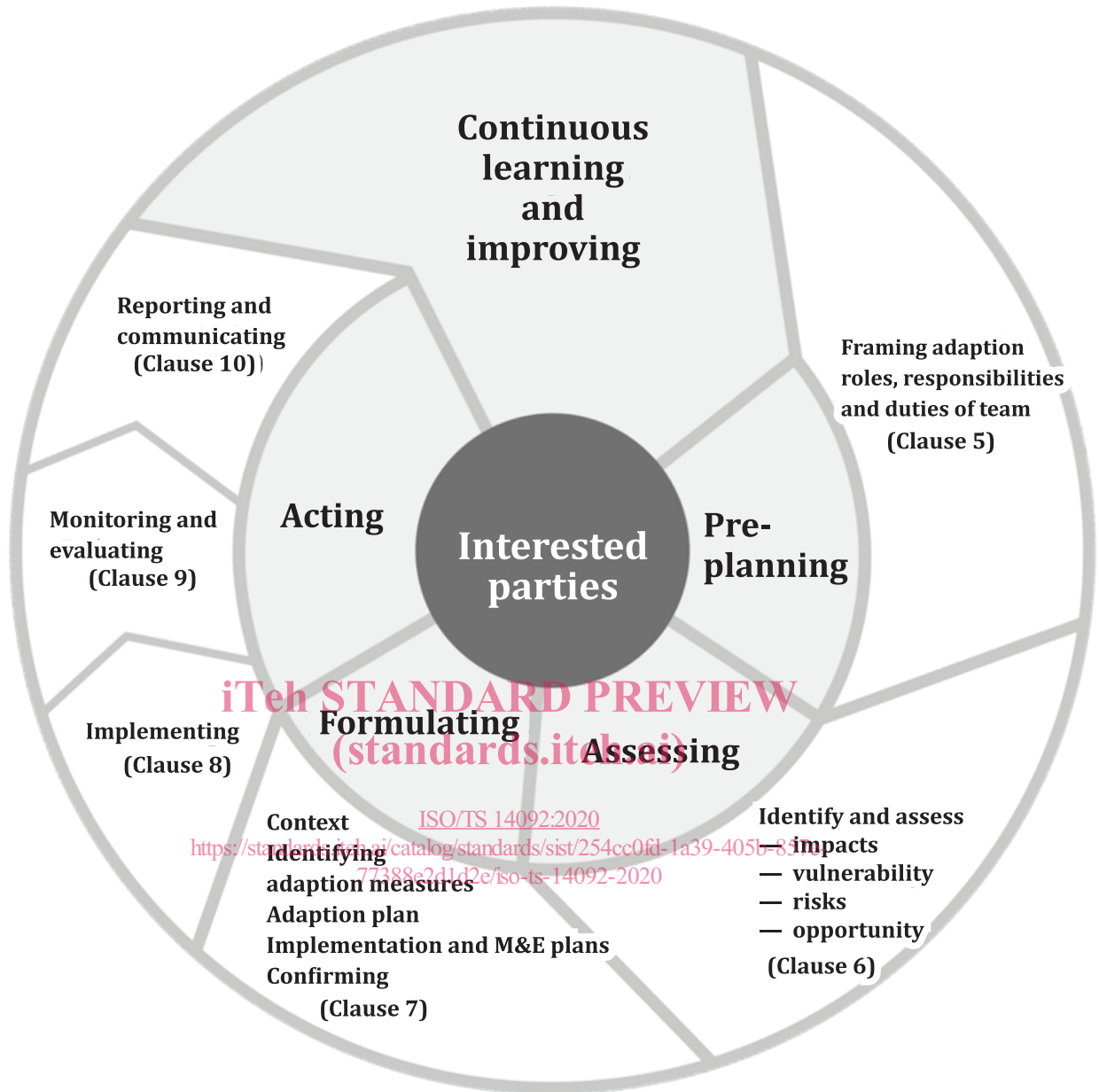
## Introduction

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**

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# 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

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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.]

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### 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.

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 might 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.

## 4.6 Prioritization

At the time of identifying the content of adaptation plans including the adaptation measures to implement, it is not necessary or always possible to cover all areas. The local government and community should prioritize the climate change impacts in order to determine where adaptation needs are higher by assessing the relative characteristics of the impacts (magnitude, likelihood and urgency). This should also take into account the capacities of interested parties and the capacities and opportunities of the local government and community to act.

## 4.7 Proportionality

Undertake actions that are the most effective under the current circumstances [contexts within which the local government and community are operating (economic, social, cultural and political), capabilities, knowledge and evidence base] when identifying and assessing adaptation measures, while also aspiring to continual improvement.

## 4.8 Relevance

Facilitate assessments leading to information for adaptation planning that is meaningful to decision-makers and practitioners, including at appropriate spatial scales and for relevant time durations.

## 4.9 Transparency

Reports and communications on the climate change adaptation are based on an open, comprehensive and understandable presentation of information for interested parties.

NOTE This principal refers to ISO 14090.

# 5 Pre-planning

## 5.1 General

The local government and community shall agree and decide on the process and means for formulating an adaptation plan prior to undertaking the planning. It should be recognized that there are benefits to having a collaborative relationship between plans formulated at the local government and community levels. It is the responsibility of the local government and the community to formulate an adaptation plan that aims to avoid or minimize damage and loss, etc. that could be caused by the impacts of current and future climate change within their jurisdiction or area of responsibility.

The local government and community shall prepare:

- for the adaptation planning to be formulated according to [Clauses 6 to 10](#);
- so that the planning process is not limited, interrupted or halted due to insufficient preparation.

The local government and community should consider their level of preparation and the nature and scope of the preparation to deliver the process, and reconsider these when they reassess or revise the adaptation plan.

## 5.2 Framing adaptation

The local government and community should establish, implement and maintain an adaptation policy.

The adaptation policy shall:

- a) be appropriate for the purpose and context of the jurisdiction, giving consideration to relevant legislation and any policies or plans (e.g. spatial, economic or municipal plans), and to climate change impacts and associated vulnerabilities of the activities, services, etc.;
- b) provide a framework for setting adaptation objectives, boundaries and timescales;
- c) include a commitment to facilitate the development and implementation of the adaptation policy;
- d) include a commitment to continual improvement of the local adaptation plan, as well within the associated implementation, and a commitment to monitoring and evaluation plans to enhance the adaptation plan's effectiveness and performance;
- e) be long term and sustainable while being timely and effective;
- f) be recorded, revisited and amended according to changing priorities;
- g) be communicated within the entity and to interested parties as appropriate.

## 5.3 Roles, responsibilities and duties of the teams

### 5.3.1 Core decision-making team

The local government and community shall identify and appoint members of a core decision-making team. This team should involve the governor, mayor or equivalent position, and leaders of departments or sections who have decision-making authority in the local government and community.

This core decision-making team shall:

- have the power for taking those decisions made in the process of the preparation and planning;
- take accountability for the formulation of the local adaptation plan and the effectiveness of the actions specified in the plan;
- communicate the importance of effective adaptation and its management, and of conforming to the adaptation framework requirements within their jurisdiction and area of responsibility;
- approve and support the actions of the facilitation team and relevant persons to contribute to the effectiveness of the adaptation action;
- support other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility;
- mobilize financial resources;
- seek cooperation and assistance from appropriate parties, such as the state, higher governance/administrative entities, neighbouring local governments and communities, if and where necessary.

### 5.3.2 Facilitation team

The local government and community should establish a facilitation team to lead the adaptation planning process. In establishing a facilitation team, the core decision-making team shall endorse its constitution, including agreeing and approving its membership and the scope of the actions to be undertaken by it.