
**Societal security — Emergency
management — Guidelines for public
warning**

*Sécurité sociétale — Gestion des urgences — Mises en garde de la
population*

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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Public warning system	2
4.1 General	2
4.2 Design the framework	3
4.2.1 General	3
4.2.2 Hazard monitoring function	3
4.2.3 Warning dissemination function	4
4.2.4 Responsibility for authorizing public warning	4
4.3 Identify public warning objectives	4
4.4 Implement the public warning process	4
4.5 Evaluate and improve	4
5 Public warning process	5
5.1 General	5
5.2 Hazard monitoring process	5
5.2.1 Identify the hazards to be monitored	5
5.2.2 Monitor the hazards	6
5.2.3 Identify the area to receive the public warning	6
5.2.4 Communicate status updates	6
5.3 Operational decision-making	6
5.4 Warning dissemination process	7
5.4.1 General	7
5.4.2 Identify the area to receive the public warning	7
5.4.3 Specify information content	7
5.4.4 Select warning methods	8
5.4.5 Disseminate public warning	9
5.5 Human factor considerations	9
Annex A (informative) Relationship between alert and notification in public warning	10
Annex B (informative) Public awareness	11
Bibliography	12

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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary Information](#).

The committee responsible for this document is ISO/TC 292, *Security*.

Introduction

Disasters, terrorist attacks, and other major incidents need an effective incident response in order to save lives, mitigate harm, and damage. Emergency response organizations need to respond quickly to a developing emergency situation. Time to communicate is limited and often, a specific message involving practical action is to be disseminated to a large group. Simple procedures that send the message efficiently and create the desired response can save lives, protect health, and prevent major disruptions.

The protection of people at risk from harm is an important part of an incident response. Public warning enables response organizations to alert their responders and allows people at risk to take safety measures to reduce the impact of incidents. Effective public warning consisting of alert and notification can prevent panic reactions and support response organizations in optimizing their responses and mitigate the impact.

Effective incident response needs a structured and pre-planned public warning. Public warning is based on two functions: hazard monitoring and warning dissemination. It is also necessary to establish a mechanism for risk identification, hazard monitoring, decision-making, warning dissemination, and to evaluate and improve.

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Societal security — Emergency management — Guidelines for public warning

1 Scope

This International Standard provides guidelines for developing, managing, and implementing public warning before, during, and after incidents.

This International Standard is applicable to any organization responsible for public warning. It is applicable at all levels, from local up to international.

Before planning and implementing the public warning system, risks and consequences of potential hazards are assessed. This process is not part of this International Standard.

2 Normative references

ISO 22300, *Societal security — Terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22300 and the following apply.

3.1 alert

part of *public warning* (3.7) that captures attention of first responders and *people at risk* (3.6) in a developing emergency situation

3.2 all clear

message or signal that the danger is over

3.3 hazard monitoring function

activities to obtain evidence-based information on hazards in a defined area used to make decisions about the need for *public warning* (3.7)

3.4 warning dissemination function

activities to issue appropriate messages for *people at risk* (3.6) based on evidence-based information received from the *hazard monitoring function* (3.3)

3.5 notification

part of *public warning* (3.7) that provides essential information to *people at risk* (3.6) regarding the decisions and actions necessary to cope with an emergency situation

3.6 people at risk

individuals in the area who may be affected by an incident

3.7 public warning
notification (3.5) and alert messages disseminated as an incident response measure to enable responders and *people at risk* (3.6) to take safety measures

Note 1 to entry: Public warning can include information to raise public awareness and understanding or to provide advisory or compulsory instructions.

3.8 public warning system
 set of protocols, processes, and technologies based on the public warning policy to deliver *notification* (3.5) and alert messages in a developing emergency situation to *people at risk* (3.6) and to first responders

3.9 vulnerable group
 individuals who share one or several characteristics that are the basis of discrimination or adverse social, economic, cultural, political, or health circumstances and that cause them to lack the means to achieve their rights or, otherwise, enjoy equal opportunities

4 Public warning system

4.1 General

The organization should establish, document, implement, maintain, and continually improve a public warning system (see [Figure 1](#)) based on a public warning policy described by [Clause 4](#).

NOTE This International Standard does not describe the public warning policy.

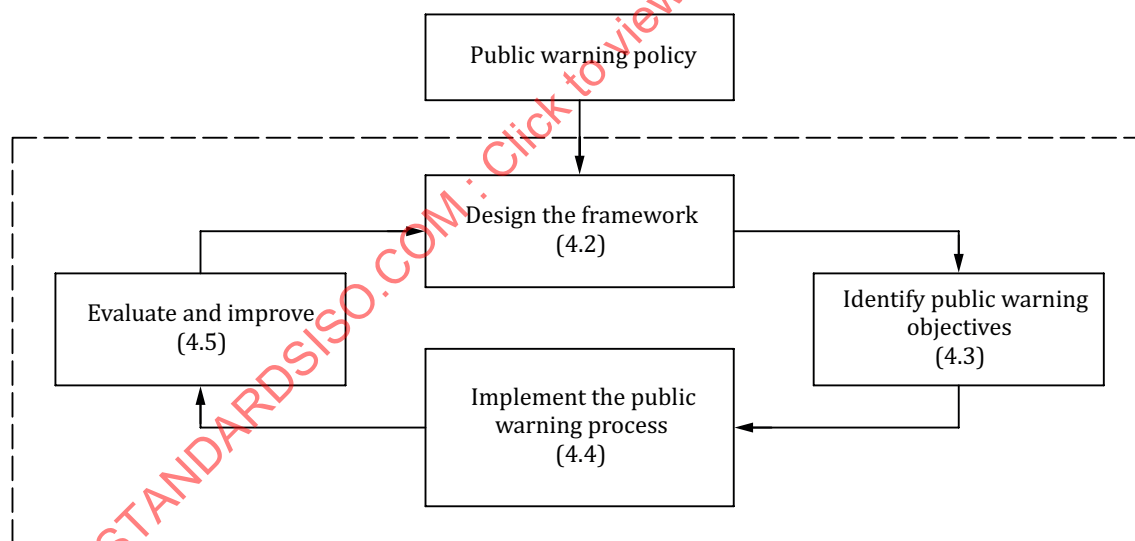


Figure 1 — Overview of the public warning system

The organization should assess the potential hazards that could occur within a defined area and the level of potential risk each presents. The results of this assessment should determine the type of public warning that may be required and be documented for future reference. The public warning system developed by the organization should

- a) comply with applicable legal and other obligatory requirements,
- b) provide the framework for setting and reviewing public warning objectives,
- c) be planned in advance,

- d) be documented, implemented, and maintained,
- e) have the human and technical resources to plan, implement, maintain, and improve the public warning system,
- f) be communicated to all persons working for or on behalf of the organization,
- g) provide suitable training for responders,
- h) be available and communicated to the public generally and especially to the people at potential risk,
- i) involve appropriate consultation with community representatives¹⁾ or bodies concerned with public interests, and
- j) include a commitment to continual improvement.

4.2 Design the framework

4.2.1 General

The organization should design a framework based on two functions: hazard monitoring and warning dissemination. The responsibility for issuing public warning should be assigned to the stakeholders who are individual experts, groups of experts, or organizations²⁾ in the private or public sectors at the local, up to international level. Those who contribute to both functions should

- a) be familiar with the capabilities and capacities of the public warning system so that relevant, accurate, reliable, and timely warnings will be disseminated,
- b) make continuous effort to raise and maintain public awareness, and
- c) specify safety actions within the warning.

4.2.2 Hazard monitoring function

Hazard monitoring is based on the risk assessment conducted to determine the hazards to be monitored.

Those involved in the hazard monitoring function are responsible for the following:

- a) understanding hazard monitoring operations from local up to international agencies and have channels to communicate with them;
- b) ongoing monitoring of identified risks within a defined area and within their range of expertise;
- c) providing early information on emerging risks;
- d) providing information about changes in the risk level;
- e) defining the emergency measures to be taken;
- f) notifying the warning dissemination function;
- g) cooperating with public authorities to enhance public awareness.

The monitoring should be based on scientific data and/or credible evidence.

NOTE The hazard monitoring function monitors potential risks that the hazards present.

1) This may include, but not be limited to community groups, mutual aid networks, political representatives, charities and NGOs, trade, and business associations.

2) Such as agencies, scientific bodies, governmental departments, industry, transportation services, international organizations, emergency organizations, etc.

4.2.3 Warning dissemination function

The warning dissemination function is responsible for the following:

- a) promptly activating procedures for disseminating public warnings;
- b) transforming evidence-based information into notification and alert messages;
- c) specifying procedures for disseminating warning messages;
- d) considering information needs of the people at risk and the diverse range of vulnerable groups;
- e) coordinating with other organizations accountable for public warning;
- f) promptly disseminating public warnings.

4.2.4 Responsibility for authorizing public warning

The organization should identify the individual or group responsible for authorizing public warning in accordance with national or local regulations or the organization's own responsibility structure. Authorization should be based on the requirements of the public warning policy and objectives and the input from the hazard monitoring function and warning dissemination function, as well as other relevant sources. A trained and nominated individual or group of individuals should be assigned to use hazard monitoring information to make timely, relevant, and accurate decisions about public warning dissemination.

4.3 Identify public warning objectives

The organization should identify objectives for the public warning system based on the public warning policy. These objectives should be considered when using the information from the hazard monitoring function to identify the people at risk and the potential impact of an incident on an area.

4.4 Implement the public warning process

The organization should implement a public warning process in accordance with [Clause 5](#).

The organization should establish effective interorganizational cooperation and coordination between the hazard monitoring function and warning dissemination function, as well as among other relevant interested parties including community groups.

All operational activities within the public warning process should be logged in a retrievable format in accordance with data privacy and data protection regulations.

4.5 Evaluate and improve

The organization should evaluate the performance of hazard monitoring and warning dissemination functions on a regular basis. The findings from the evaluation should be used to identify potential improvements.

Evaluation processes should be conducted at regular intervals not exceeding five years.

The warning dissemination function should evaluate the content and timeliness of notifications and alerts, as well as the choice of communication channels.

Evaluation processes should be activated whenever the people at risk have not taken the expected safety actions.

5 Public warning process

5.1 General

The public warning process should include all elements shown in [Figure 2](#).

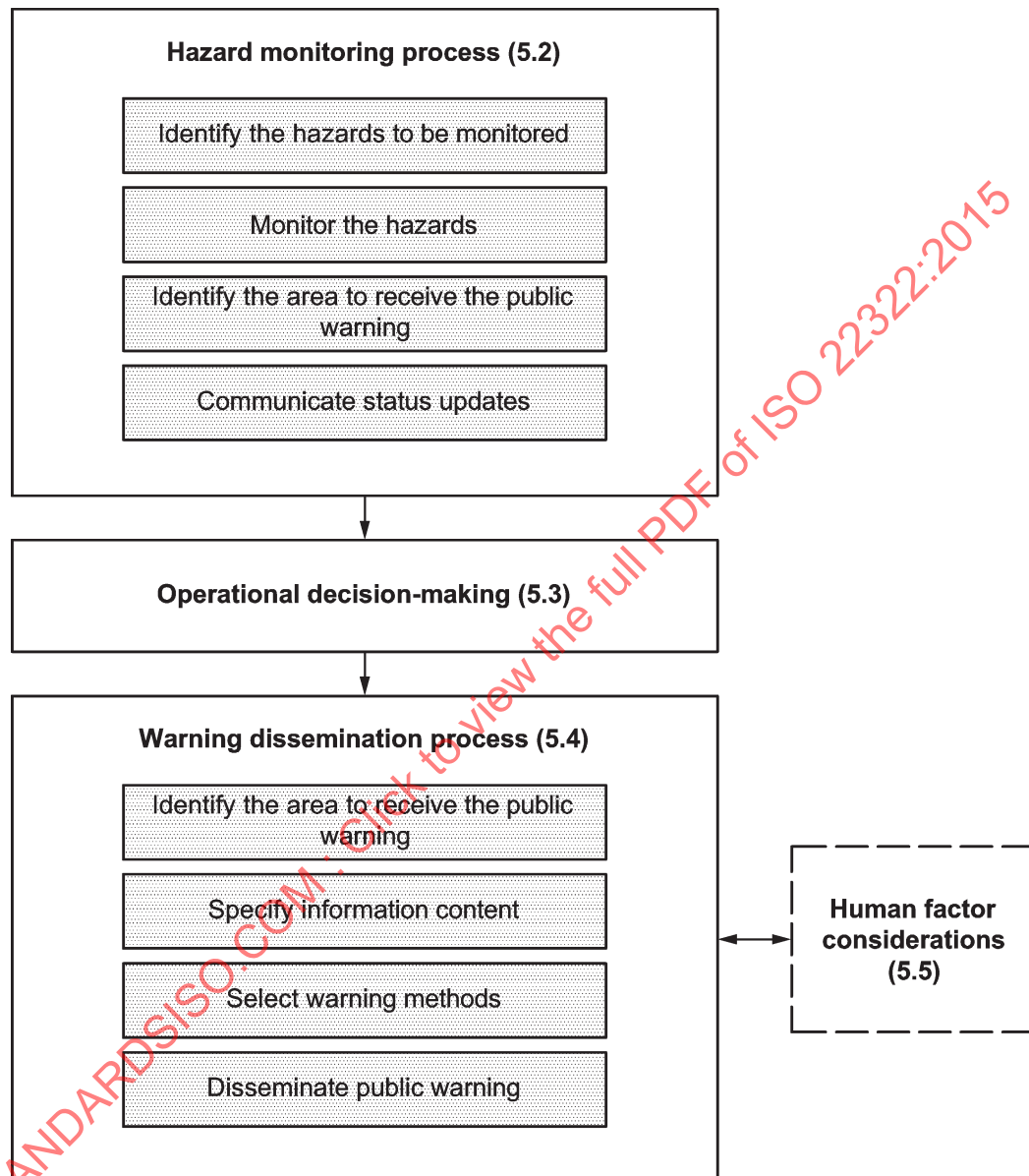


Figure 2 — Overview of the public warning process

5.2 Hazard monitoring process

5.2.1 Identify the hazards to be monitored

The hazard monitoring function should

- identify and list relevant hazards,
- establish indicators to be used to monitor the status of a hazard,
- determine the science-based or credible evidence-based criteria for issuing a public warning,

- d) identify the criteria for issuing a notification, an alert and an all clear, and
- e) determine the criteria for each area(s) of risk.

5.2.2 Monitor the hazards

The hazard monitoring function should

- a) assign those with appropriate knowledge of hazard monitoring operations,
- b) collect scientific data for risk assessment for each area at risk,
- c) prepare decisions on issuing public warning for the warning dissemination function,
- d) obtain the risk information recommended to be included in the public warning, and
- e) pass the information to the warning dissemination function immediately.

5.2.3 Identify the area to receive the public warning

For each area at risk, the hazard monitoring function should identify the following:

- a) the area at risk where the warning is to be sent;
- b) the people at risk within that area;
- c) the responsible warning dissemination function within that area;
- d) the risk to adjacent areas that may potentially be affected.

5.2.4 Communicate status updates

The hazard monitoring function should

- a) provide regular hazard status updates to the warning dissemination function, to those responsible for authorizing public warning, and as appropriate, to the people at risk;
- b) request confirmation that the status updates have been received and considered;
- c) inform the people at risk about the risk threshold for each area.

5.3 Operational decision-making

The organization should establish a decision-making process which includes the following:

- a) evaluation of the input from the hazard monitoring function;
- b) the type and content of the public warning to be disseminated to the people at risk;
- c) how the public warning is to be communicated;
- d) evaluation of the available resources;
- e) the time frame for issuing the warning;
- f) an assessment of the need for coordination and cooperation.

5.4 Warning dissemination process

5.4.1 General

The warning dissemination function should

- a) assess the information received from the hazard monitoring function to determine the risk level within the area at risk,
- b) implement processes which minimize the delay between the receipt of the information and warning activation,
- c) assess their local risk in accordance with the criteria for a notification, an alert, and an all clear, and
- d) evaluate and update the criteria on a regular basis.

5.4.2 Identify the area to receive the public warning

The warning dissemination function should consider the following when identifying the area at risk:

- a) the nature and severity of risk;
- b) geographic and topographic features of the area;
- c) the number of people at risk;
- d) the vulnerability of the people at risk;
- e) weather conditions and forecast.

5.4.3 Specify information content

5.4.3.1 General

The warning dissemination function should specify the information content considering the following:

- a) who should issue the public warning;
- b) who should receive the information;
- c) when is the public warning to be issued;
- d) who is expected to take action and why is action required;
- e) what action is expected and when;
- f) what to expect as the situation develops;
- g) how the people at risk can access additional information.

Public warnings should consist of alert and notification.

5.4.3.2 Alert

The purpose of an alert is to attract the attention of people in a developing emergency situation by stimulating the auditory, visual, and tactile senses so that they will take appropriate safety actions and seek additional information.

The warning dissemination function should ensure that the alert gains maximum attention considering the characteristics and conditions of the people at risk including the requirements of vulnerable groups.

5.4.3.3 Notification

The purpose of notification is to provide essential information prior to the incident to people at risk regarding the decisions and actions necessary to cope with a developing emergency situation.

The notification should be timely, appropriate to the people who are potentially at risk, and reflect the current status of the situation. The information should be supplemented by pictograms, graphic symbols, and/or signs.

The warning dissemination function should consider the following when preparing a notification:

- a) the type and purpose of the alert that will be issued;
- b) the hazard, threat, or emergency situation prompting the notification;
- c) when the emergency situation is expected to occur;
- d) the people at risk to whom the notification applies;
- e) the appropriate safety actions to be taken;
- f) when additional information will be available and how to get it.

5.4.4 Select warning methods

The warning dissemination function should determine the appropriate warning methods considering the following factors:

- a) the time needed to allow people to follow the instruction (timeliness);
- b) the availability, effectiveness, and technical reliability;
- c) how easily people can access the transmitted message including vulnerable people.

The warning dissemination function should consider the capability of the range of communication channels to provide for maximum coverage and for timely distribution. Examples of existing communication channels are the following:

- d) multi-purpose public person-to-person (telephone, FAX, cellular phone);
- e) public broadcasting (TV, radio, cellular broadcast);
- f) print media (newspapers);
- g) dedicated warning systems (sirens, smoke alarms, indoor receiver, loud speakers, vehicles with public address loudspeaker systems);
- h) information and communication technology-based (ICT) media (web pages, e-mail, SMS, and social media);
- i) direct personal communication (neighbour to neighbour, workplaces).

The warning dissemination function should use multiple communication channels simultaneously and in a complimentary way.

New and emerging communication channels should be considered as they become available.

The warning dissemination function should monitor the communication channels used in order to maintain the quality of the warning dissemination and conduct periodic evaluations for effectiveness and consistency.

5.4.5 Disseminate public warning

The warning dissemination function should

- a) send out the information repeatedly using multiple communication channels and in appropriate languages,
- b) identify the date and time of issue for repeated and periodic public warnings,
- c) consider the needs of a transient population who are unfamiliar with the local environment,
- d) confirm that the content of alerts and notifications and related information meets the needs of vulnerable groups, and
- e) request feedback from stakeholders to improve warning dissemination.

NOTE Media outlets have an important role to play in informing people at risk. There is a benefit from establishing relationships with media outlets. For better collaboration with media outlets, it is important to understand media news cycles and deadlines.

5.5 Human factor considerations

Human factors take into account the ability of the people at risk, particularly those with disabilities, to receive and understand public warning messages.

Public warning should consider the human factors that influence the effectiveness of safety actions to be taken by people at risk. It should ensure equal access to warning information and alerts and that the information received is understandable so that the people at risk including those with diverse social and cultural needs can respond as expected and take the appropriate action.

NOTE Human factors are the scientific discipline addressing human characteristics including biomedical, psychological, and psychosocial characteristics. It includes principles and applications in the personnel selection areas, tools for job performance, and human performance evaluation.

Annex A (informative)

Relationship between alert and notification in public warning

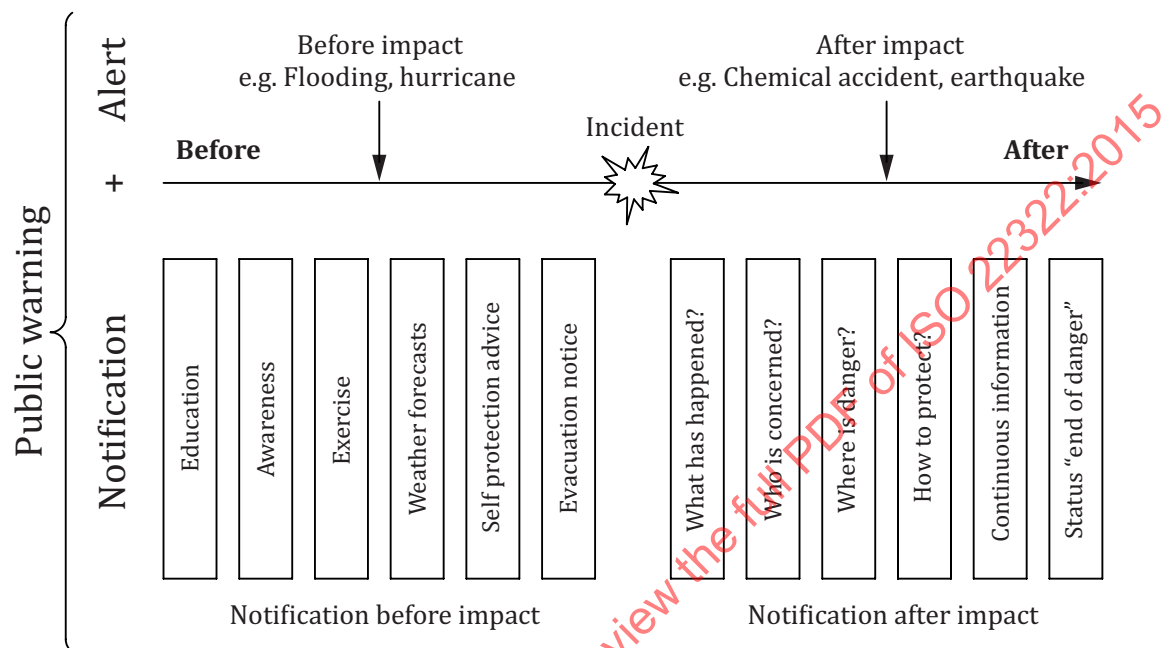


Figure A.1 — Relationship between alert and notification in public warning

Public warning consists of alert and notification. An alert can be disseminated before an impact due to an incident when a prediction is possible or immediately after an impact.

Notification serves as part of education, public awareness, and exercise in order to prepare people potentially at risk for imminent incidents. Notification can also be part of the prevention measures in case of predictable incidents to inform people potentially at risk how to prepare themselves on how to respond to simple forecasts up to evacuation notices. When an alert is disseminated, notification serves to inform about what has happened, who is affected, where danger might be, and how to take protective measures. When appropriate, notification includes information with advisory or compulsory instructions.

Notification is made repeatedly and frequently until the "all clear" is issued.