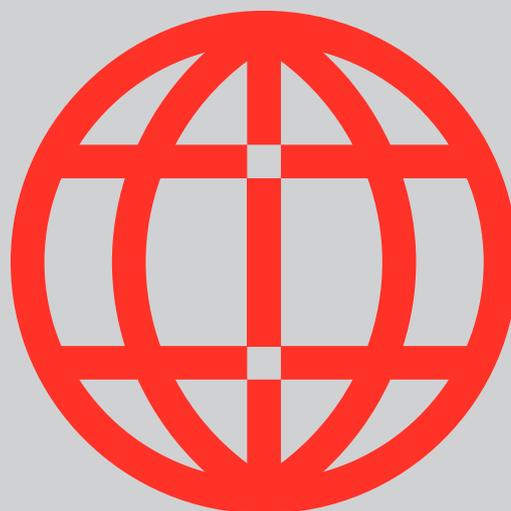# SVENSK STANDARD
SS-ISO 22328-1:2020

**Säkerhet och resiliens – Krishantering –
Del 1: Vägledning för implementering av lokala varningssystem
för naturolyckor (ISO 22328-1:2020, IDT)**

**Security and resilience – Emergency management –
Part 1: General guidelines for the implementation of
a community-based disaster early warning system
(ISO 22328-1:2020, IDT)**

SiS Svenska
Institutet för
Standarder

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Fastställd: 2020-11-20
ICS: 03.100.01; 04.140

Den internationella standarden ISO 22328-1:2020 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 22328-1:2020.

The International Standard ISO 22328-1:2020 has the status of a Swedish Standard. This document contains the official English version of ISO 22328-1:2020.

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LÄSANVISNINGAR FÖR STANDARDER

I dessa anvisningar behandlas huvudprinciperna för hur regler och yttre begränsningar anges i standardiseringsprodukter.

Krav
Ett krav är ett uttryck i ett dokuments innehåll som anger objektivt verifierbara kriterier som ska uppfyllas och från vilka ingen avvikelse tillåts om efterlevnad av dokumentet ska kunna åberopas.
Krav uttrycks med hjälpverbet ska (eller ska inte för förbud).

Rekommendation
En rekommendation är ett uttryck i ett dokuments innehåll som anger en valmöjlighet eller ett tillvägagångssätt som bedöms vara särskilt lämpligt utan att nödvändigtvis nämna eller utesluta andra. Rekommendationer uttrycks med hjälpverbet bör (eller bör inte för avrådanden).

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Instruktioner anges i imperativ form och används för att ange hur något görs eller utförs. De kan underordnas en annan regel, såsom ett krav eller en rekommendation. De kan även användas självständigt, och är då att betrakta som krav.

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En förklaring är ett uttryck i ett dokuments innehåll som förmedlar information. En förklaring kan uttrycka tillåtelse, möjlighet eller förmåga. Tillåtelse uttrycks med hjälpverbet får (eller motsatsen behöver inte). Möjlighet och förmåga uttrycks med hjälpverbet kan (eller motsatsen kan inte).

READING INSTRUCTIONS FOR STANDARDS

These instructions cover the main principles for the use of provisions and external constraints in standardization deliverables.

Requirement
A requirement is an expression, in the content of a document, that conveys objectively verifiable criteria to be fulfilled, and from which no deviation is permitted if conformance with the document is to be claimed. Requirements are expressed by the auxiliary shall (or shall not for prohibition).

Recommendation
A recommendation is an expression, in the content of a document, that conveys a suggested possible choice or course of action deemed to be particularly suitable, without necessarily mentioning or excluding others. Recommendations are expressed by the auxiliary should (or should not for dissuasion).

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An instruction is expressed in the imperative mood and is used in order to convey an action to be performed. It can be subordinated to another provision, such as a requirement or a recommendation. It can also be used independently and is then to be regarded as a requirement.

Statement
A statement is an expression, in the content of a document, that conveys information. A statement can express permission, possibility or capability. Permission is expressed by the auxiliary may (its opposite being need not). Possibility and capability are expressed by the auxiliary can (its opposite being cannot).

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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).

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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 292 *Security and resilience.*

A list of all parts in the ISO 22328 series can be found on the ISO website.

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

Disasters such as earthquakes, tsunamis, volcanic eruptions, high river flows (e.g. floods, low river flows, sudden flash floods), landslides, storm surges and hurricanes as well as slow-onset events such as drought, extreme temperatures, heat waves or soil erosion can have devastating impacts. Disasters can happen anytime to anyone who lives in a disaster-prone area. These disasters injure and kill people and result in tremendous economic, social and environmental losses. Disasters can be caused by natural hazards and/or by human beings.

Disaster mitigation can be conducted by using various approaches, including the construction of prevention and protection works, which require a high investment of cost and time. In addition, disasters can have a varied and wide range of impact, meaning that implementing these measures may not be effective. Therefore, effective disaster risk reduction is implemented through various approaches, by means of improving the community's preparedness and consequent resilience through the implementation of an early warning system (EWS).

A community-based disaster EWS is proposed to empower individuals and communities who live in hazard-prone areas to be more aware, to react or evacuate in a sufficient time, and to reduce losses caused by disasters, such as injuries, loss of life, and damage to property, economy and the environment.

The implementation of a community-based disaster EWS is consistent with the Sendai Framework for Disaster Risk Reduction of 2015–2030[6], specifically target g) of the seven global targets: "Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030". Based on the fourth priority of the framework, the improvement of preparedness is the basis for the capability to respond effectively to a disaster. Improvement of preparedness can be achieved by implementing an EWS, in addition to improving the dissemination and communication of knowledge about the early warning of disasters at local, national, regional and international levels.

According to UN-ISDR[7], a complete and effective EWS consists of four interrelated key elements:

a)   risk knowledge;

b)   monitoring and warning service;

c)   dissemination and communication;

d)   response capability.

All of these elements are strongly correlated to the implementation of a community-based EWS.

EWSs are incorporated not only into engineering, but also into social aspects such as demography, economics and culture. This document encourages the active response of the community to disasters and considers social aspects in general. Further dissemination and communication of knowledge to the community are carried out by the authority at local and national levels.

By referring to the four key elements of a community-based EWS, this document promotes uniformity in the development and implementation of an EWS. It will improve the preparedness of the communities and interested parties vulnerable to disasters.

The community-based disaster EWS considers the different communication channels, legal aspects and responsibility allocation as well as final decision-making and its communication.

This document recognizes population behaviour response planning as a key part of the preparedness. It takes into account the approach of ISO 22315:2014[3] and ISO 22322:2015[4] and provides additional specifications for a disaster EWS.

Security and resilience — Emergency management —

Part 1:
General guidelines for the implementation of a community-based disaster early warning system

1 Scope

This document gives guidelines for the implementation of a community-based disaster early warning system (EWS). It describes the methods and procedures to be implemented and provides examples.

This document is applicable to communities vulnerable to disasters, without taking secondary/indirect effects into consideration.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22300, *Security and resilience — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22300 and the following 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
community vulnerability
characteristics and conditions of different exposed elements at risk, such as individuals, groups or infrastructures, that put them at risk for the destructive effects of a hazard

3.2
early warning
provision of information through local networks, allowing affected individuals to take action to avoid or reduce risks and to prepare responses

3.3
community-based early warning system
community-based EWS
method to communicate information to the public through established networks within institutional, political, legal and social contexts

Note 1 to entry: The warning system can consist of risk knowledge, monitoring and warning service, dissemination and communication, and response capability to avoid, reduce risks and prepare responses against disaster.

[SOURCE: ISO 22300:—, 3.27,[1)] modified — "early" has been added to the term and "within institutional, political, legal and social contexts" has been added to the definition.]

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1) Under preparation. Stage at the time of publication: ISO/FDIS 22300:2020.

3.4
evacuation command
series of orders to evacuate people

3.5
evacuation drill
activity that practises a particular skill related to evacuation and often involves repeating the same thing several times

EXAMPLE   A drill to practise safely evacuating a neighbourhood or village from a disaster.

[SOURCE: ISO 22300:—, 3.69, modified — "disaster" has replaced "landslide" in the example.]

4   Community-based disaster early warning system

4.1   General

The community-based disaster EWS should comprise five main sub-systems:

a)   risk assessment, see 4.2;

b)   dissemination and communication of knowledge, see 4.3;

c)   monitoring and warning service, see 4.4;

d)   response capability, see 4.5;

e)   commitment of the authority and community on the sustainability of the EWS, see 4.6.

4.2   Risk assessment

The disaster preparedness team should conduct a risk assessment in accordance with ISO 31000:2018, Clause 6[5], and identify vulnerabilities.

The disaster preparedness team should consider the following factors in its risk assessment:

—   Technical: To help understand the physical conditions of the vulnerable area; to classify the types and the range of hazards, their potential extremes and their dependencies; to collect information regarding the indicators of a disaster; and to determine vulnerable and safe zones. These indicators may include specific symptoms and conditions that indicate the potential hazards area. These indicators may be used to determine the placement of the EWS instruments.

—   Institutional: To understand whether there are established organizations currently responsible for monitoring and mitigating in the disaster-prone areas and if respective legal frameworks are provided.

—   Socioeconomic and cultural: To collect information on community demographics, such as population, by age, education, mobility and financial situation, the number of households, vehicles and livestock, and cultural considerations. These factors also provide information on the community's knowledge concerning disasters. This information provides insight into the community's perception of disaster risk and disaster risk reduction means (technology, population preparedness, etc.) that can be used to improve the successful introduction of the EWS and to gain an understanding of the community's vulnerabilities and complexities.

NOTE 1   Information on potential vulnerable inhabitants and infrastructure due to disasters is important to determine the level of community vulnerability.

NOTE 2   The community's eagerness and motivation to actively participate is relevant to design strategies for disaster risk reduction programmes that are suitable for the local social conditions.

NOTE 3   The programmes can give knowledge and increase people's capacity to be able to decide what needs to be done in order to prevent and protect themselves from disasters.

4.3   Dissemination and communication of knowledge

The disaster preparedness team should:

— develop methods and materials on how to disseminate and communicate knowledge that provides the public with a comprehension and an understanding of the potential for disasters;

— provide information on the types of disasters, how and why they occur, the factors that control and trigger the events, and the structural and non-structural strategies to mitigate the consequences, including an EWS, warning levels and signage.

The dissemination and communication of knowledge should use clear language, provide useful information, identify the authoritative agency and provide multiple communications, including by traditional means but also using modern social media methods to ensure the maximum number of people is reached.

Effective dissemination provides for better understanding about disasters and knowledge about how to minimize risks once the EWS is in place.

The dissemination of information should lead to the identification of key people/organizations with an interest in participating in a disaster preparedness team.

These methods and materials for dissemination and communication of knowledge should be based on the preliminary data of the risk assessments.

4.4   Monitoring and warning service

The disaster preparedness team should place early detection devices in areas that cover the high-risk zones.

The installation of the equipment should be coordinated with the authority, with the aim to increase the sense of ownership and responsibility for the equipment's condition to guarantee safety.

The type and amount of early detection equipment and alert levels should be appropriate to the type of disaster.

The early detection devices installed to support the EWS should include the devices required to ensure the work of the EWS and additional tools to improve measurement accuracy.

To implement a community-based disaster EWS, the monitoring and early detection devices should use appropriate and adaptive technology.

The warning service should consider the different conditions and knowledge of the public (e.g. age of people, special requirements for vulnerable groups).

For information on monitoring and warning services to the public and communities, refer to ISO 22322:2015, 5.2 and 5.4[4].

Monitoring data can be collected, transferred, stored and analysed. The results should be made available to the different users, such as experts, responsible entities and the public based on conditional access, which should be defined within the legal conditions and the warning service.

4.5   Response capability

4.5.1   General

The community should be able to respond to disasters in sufficient time with the right manner. In order to achieve a high level of coordination, community involvement is a key determinant of the successful