WORKING GROUP 1 | PRELIMINARY REPORT

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Introduction

Working Group 1 (WG1) of AlertHub focuses on mapping existing data and research on disaster communication and warning systems across Europe. The aim is to collect, curate and compare information on national warning systems, processes and procedures, and to identify similarities, differences and practices that may be relevant across countries. This work is part of AlertHub's broader ambition to strengthen knowledge exchange between researchers and practitioners and to improve warning communication in Europe.

As part of this work, WG1 has developed and applied a common country study protocol covering the organization and governance of disaster communication, warning systems and technologies, communication practices, challenges, and examples of actual cases. Data have primarily been collected by WG1 members through document analysis of national legislation, policy documents, organizational guidelines, government and agency websites, reports, and other relevant sources. In parallel, an AI-based research agent has been used to conduct structured searches of publicly available sources. These searches have been used as a complementary source of information and to identify possible gaps in the material, but they are not reported in detail here.

This report provides a first overview of the countries for which WG1 country protocols have been completed. Rather than presenting the full study protocol, we focus on three central questions: (A.1) how disaster communication and its governance structure are organized; (A.2) which warning systems are used; and (A.3) which purposes are attributed to disaster communication in official documents. The report has two sections. Section 1 presents short country descriptions based on these three questions. Section 2 compares the countries and discusses some of the main similarities and differences. The aim is not to provide a complete assessment of each national system, but to offer a first comparative overview that can serve as a basis for the more extensive analyses planned within WG1.

Selection and preparation of country descriptions

The report covers 26 countries for which country protocols were completed as part of the WG1 data collection: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Estonia, Germany, Greece, Italy, Kosovo, Lithuania, the Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovenia, Spain, Sweden, Switzerland, Türkiye, Ukraine, and the United Kingdom. The parallel AI-agent searches covered a broader set of countries and sources, but the country descriptions in this report are based only on the WG1 country protocols listed above.

The country descriptions are based on the wording provided by the country contributors in the study protocols. For each country, we present the answers to the three main questions A.1, A.2 and A.3. However, the protocols were not filled in in exactly the same way in all countries. In some cases, contributors answered the main questions directly. In others, the main question was left blank and the relevant information was instead provided under one or more of the sub-questions.

To make the country sections as comparable as possible, we used a simple procedure. For A.1 (organization and governance), the answer to A.1 was used when available. If A.1 was not answered, we used A.1.6, and A.1.5 if necessary. For A.2 (warning systems), we used A.2 when available and A.2.4 when the main question was left unanswered. For A.3 (purposes of disaster communication), we used A.3 when it contained an actual answer. If it was left blank or only contained a short response such as "Yes", we used the answer to A.3.1 instead.

The purpose of this procedure was to make the material more comparable without combining or rewriting answers from different questions. Where information was missing, we did not try to reconstruct an answer from other parts of the protocol. The country descriptions should therefore be read as a structured presentation of the material provided by the country contributors, rather than as a complete or independently verified description of each national system.

Section 1 – Country mapping

Austria

A.1 Organisation and governance

Prevention, mitigation, and relief of the effects of impending or actual disasters are primarily the responsibility of the federal provinces. The legal basis is provided by the provinces' Disaster Relief Acts, which define the declaration of a disaster and the official operational command at local, district, and provincial levels.

The need for increased coordination during crises and disasters is met by the State Crisis and Disaster Management (SKKM), whose office is located within the Federal Ministry of the Interior (BMI). It ensures efficient disaster relief both nationally and internationally by coordinating all relevant federal bodies with the provincial disaster protection authorities and aid organizations.

SSKM was originally set up at the Federal Chancellery in 1986, coordination was transferred to the BMI in May 2003 and formally reorganized in January 2004. This reorganization centralized various coordination bodies into a new Coordination Committee, chaired by the Director General for Public Security.

The Coordination Committee includes federal ministries, provinces, operational organizations, and media representatives. It coordinates and harmonizes necessary measures at the federal and provincial levels during large-scale threats and is also active in fundamental policy planning through eight specialized working groups. In case of an event, the Federal Warning Center (BWZ), part of the Situation Center since 2006, acts as the information hub and permanent national contact point for provinces, neighboring states, and international organizations. The current strategy is guided by the Strategy 2020. (BMI 2024, 2025)

Source: A.1

A.2 Warning systems

Austria uses a multi-channel warning architecture consisting of the nationwide siren system, the cell broadcast warning system AT-Alert, the public broadcaster ORF (TV, radio, online), provincial and municipal communication channels, and various digital and social media platforms. Some provinces operate additional apps or portals. Informal networks (volunteer groups, neighbourhood messaging) often play a complementary role.

Source: A.2

A.3 Purposes of disaster communication

Yes. Federal and provincial documents consistently frame disaster communication as a core element of civil protection aimed at protecting life, health, property, and the environment; raising situational awareness; providing clear behavioural instructions; and supporting coordinated emergency response. Public warning is explicitly defined as a tool to inform the population of imminent or ongoing hazards and to support self-protection.

Source: A.3

Belgium

A.1 Organisation and governance

The coordination of an emergency takes place at the municipal, provincial or federal level (National Crisis Center, 2025). At each level, a mayor, governor, or the Minister of the Interior can declare a phase. During a municipal phase, a mayor is in charge. During a provincial phase, a governor is in charge. During a federal phase, the Minister of the Interior is in charge. When a federal phase is declared, the National Crisis Center notifies all (inter)national and local authorities concerned in order to activate crisis management procedures.

In practice, emergency situations are usually handled as followed across the different administrative levels in Belgium (Scheerlinck, 2022).

Municipal: fires, traffic accidents, local industrial incidents

Provincial: industrial incidents, large traffic accidents, food or illness related threats, meteorological emergency situations, natural disasters

Federal: nuclear and terrorism-related incidents, emergency situations that affect the entire country (e.g. COVID-19) or that are to large to manage at a local level.

Source: A.1.6

A.2 Warning systems

BE-Alert. This warning system can be used by the Minister, governor or mayor and can thus be activated at the federal, provincial, and municipal level (European Emergency Number Association, 2019; National Crisis Center, 2025; Scheerlink, 2022). Warnings can be sent as voice calls, SMS, e-mails or through social media like Facebook and X. BE-Alert provides a warning system that enables the reach of the majority of the Belgian population during emergency situations. BE-Alert can reach target audiences in three ways, namely through subscriptions, through localisation, and through mass spreading (Scheerlinck, 2022).

Subscription system: The address-based system functions by selecting an area on a map and by sending a warning message to people who previously registered their address on www.be-alert.be. This system requires the necessity of a database and the encouragement of citizens to subscribe to the platform through www.be-alert.be. During emergency situations, governments can select based on the address information who they consider relevant to contact with a warning message or not.

Localisation: The National Crisis Center has also implemented as system based on location-based SMS to warn all people who are present within a determined area, without any prior registration. BE-Alert works through an LB-SMS system rather than a Cell Broadcast system (because when the system started, Cell Broadcast still suffered from important disadvantages that are less present today). The channel is integrated in an alarming platform called BE-Alert, which enables the requesting government to send the message directly (and not, like in the past, through the National Crisis Center). This location-based system functions by selecting an area on a map and by sending a warning message to mobile users identified by mobile operators. The activation procedure of these alert SMS's is integrated in the BE-Alert platform using the CAP protocol.

Mass spreading: The basis for this third cluster is the combination of three elements, namely (a) the Common Alerting Protocol, (b) internet connection, and (c) electronic screens.

Source: A.2.4

A.3 Purposes of disaster communication

According to the brochure about Belgium's warning procedures (Federal Public Service Home Affairs, National Crisis Center, 2017), the 'clear aim' is 'alarm to inform'. After citizens have been alarmed, the brochure says, receivers of a warning will be more open to the information and recommendations from the governments. Consequently, a successful alerting process must

achieve the following objectives according to the Belgian Natoinal Crisis Center (Federal Public Service Home Affairs, National Crisis Center, 2017, p. 4):

“Alert as many affected individuals as possible

In the shortest possible time

With a uniform, clear, and concrete message

Issued by an official source that is clearly identified

Using multiple channels that complement each other

Alerting channels should be considered technical support tools to achieve a crisis communication objective”.

Source: A.3.1

Bosnia and Herzegovina

A.1 Organisation and governance

Crisis communication in Bosnia and Herzegovina operates within a decentralized system reflecting the country's complex political structure. Responsibilities are divided among state, entity, and local levels, each tasked with informing the public and coordinating during crises. Key actors include:

State level: Ministry of Security and the Coordination Body for Protection and Rescue;

Entity level: Civil protection services in the Federation of BiH and Republika Srpska;

Cantonal level (Federation of BiH): Each canton has two or more civil protection bodies;

Local level: Municipal civil protection bodies;

Brčko District: Civil protection authority of the district.

The main challenges include overlapping responsibilities, inconsistent messaging, and limited use of standardized communication templates, which can hinder the effectiveness of disaster communication across different administrative levels.

Source: A.1

A.2 Warning systems

Bosnia and Herzegovina does not yet have a fully functional national warning system. Although the Operational-Communication Centre 112 (OCC-112) was formally established under the Ministry of Security of BiH, the system is not operational across the entire country. This means that the 112 number, designed to serve as a single emergency contact point, is not yet functional for citizens.

Instead, entity and local-level institutions rely on their own mechanisms. The Federal and Republika Srpska Civil Protection Administrations issue warnings through hydrometeorological services, local media, and coordination channels with municipalities. Public service broadcasters (BHRT, FTV, RTRS) and local radio stations remain the main tools for disseminating alerts to the population.

In practice, early warnings are communicated through media reports, institutional websites, and social media, but the absence of an integrated, real-time alert system weakens overall public safety and crisis response.

Source: A.2

A.3 Purposes of disaster communication

No.

Source: A.3

Bulgaria

A.1 Organisation and governance

In Bulgaria, disaster communication is organised across three administrative levels—national, regional, and local—under the coordination of the Ministry of Interior through the Fire Safety and Civil Protection Directorate-General (GDFSCP).

National level: The Council of Ministers oversees the National Early Warning and Notification System, while the Minister of Interior coordinates all crisis communication activities (Disaster Protection Act, Arts. 29, 62). National-level activation occurs during complex or large-scale emergencies, such as CBRN incidents, requiring multi-ministerial coordination.

Regional level: Regional governors are responsible for coordinating communication within their districts, ensuring that local authorities and institutions disseminate consistent information (Arts. 63–65).

Local level: Municipal mayors manage communication with residents during local disasters—such as floods, fires, or industrial accidents—and implement siren, radio, and BG-ALERT notifications (Art. 66).

Private and non-governmental actors, including telecom operators, are required under the Electronic Communications Act and Ordinance No. 8121з-413/29.03.2024 to transmit BG-ALERT warnings via mobile networks.

Public service media, regulated by the Radio and Television Act (Arts. 6, 71), must broadcast official warnings and safety instructions.

NGOs and the Bulgarian Red Cross further support local authorities in community communication and public awareness campaigns.

Source: A.1.6

A.2 Warning systems

Bulgaria's state-operated warning systems are coordinated by the Fire Safety and Civil Protection Directorate-General (GDFSCP) under the Ministry of Interior. Two complementary systems operate nationwide:

National Early Warning and Notification System (NEWS):

NEWS uses sirens, radio, and television to alert the public and authorities. It can be activated by the Minister of Interior, regional governors, or municipal mayors, depending on the scale of the event. Activation occurs via regional operational centres linked to the GDFSCP National Operations Centre in Sofia.

BG-ALERT System:

BG-ALERT disseminates mobile emergency alerts using Cell Broadcast technology. Messages are generated, validated, and transmitted directly by authorised GDFSCP officials. The system can issue geotargeted alerts to all users in an affected area, including foreign mobile numbers.

BG-ALERT complements traditional siren and media channels, ensuring unified, multilingual public warning.

Note: Both systems operate under the Ministry of Interior's 24/7 National Operations Centre, ensuring coordinated, multi-channel dissemination across administrative levels.

Source: A.2.4

A.3 Purposes of disaster communication

Following the Bulgaria's Disaster Protection Act (Arts. 4, 11, 62) and the Ordinance No. 8121з-413 of 29 March 2024 regulating the BG-ALERT system, the overarching purpose of disaster communication is to protect life, health, property, and the environment through timely, accurate, and coordinated information.

The national strategy of the Ministry of Interior and its Fire Safety and Civil Protection Directorate-General (GDFSCP) emphasise the principle of "early warning to protect" (ранно предупреждение за защита), aiming to:

Alert all affected individuals as quickly as possible, using harmonised and redundant channels (BG-ALERT, sirens, media).

Provide clear and actionable guidance that enables the population to take protective measures.

Raise risk awareness and preparedness through continuous public education and training initiatives.

Ensure inclusivity, reaching vulnerable groups such as persons with disabilities or foreign nationals via multilingual and accessible messages.

Ivanova (2025) emphasizes that crisis communication in Bulgaria aims not only to provide immediate protection through accurate alerts and safety instructions but also to strengthen public preparedness and resilience by enhancing awareness and trust in official institutions.

Source: A.3.1

Croatia

A.1 Organisation and governance

Disaster communication in Croatia is organized within a centralized but multi-level civil protection governance system, regulated primarily by the Civil Protection System Act (Republic of Croatia, 2015). Overall coordination is led by the Ministry of the Interior, through its Civil Protection Directorate, which oversees preparedness, response, and public communication. Operational responsibility is structured through Civil Protection Headquarters (Stožeri) at national, county, and local levels, following the principle of subsidiarity: local authorities respond first, with escalation to higher levels when necessary (European Commission, 2018).

Public warning and crisis messaging are supported by SRUUK (Civilna zaštita, n.d.), Croatia's national early warning and crisis management system, which disseminates alerts via mobile networks and digital channels. Information inputs come from specialized agencies such as meteorological, hydrological, seismic, health, and fire services. During major emergencies, civil protection headquarters act as the primary authoritative source of information, using traditional media, official websites, social media, and alert systems. Overall, Croatia's disaster communication model emphasizes centralized coordination, legally mandated public information, and increasing integration of early warning technologies.

Source: A.1

A.2 Warning systems

Croatia employs a multi-channel warning system, centrally coordinated by the National Civil Protection Directorate to ensure consistent messaging during disasters. The state-mandated technical core consists of a national siren network and a location-based Cell Broadcast (CB) system that sends alerts to all mobile phones in a defined area (National Civil Protection Directorate, 2020). Public service and commercial broadcasters are legally required to immediately interrupt programming to relay official warnings, while telecom operators must distribute the CB alerts (Republic of Croatia, 2015). This is supplemented by ad-hoc local methods, such as loudspeaker announcements by first responders, and specialized channels from agencies like the Meteorological and Hydrological Service for weather forecasts (Šakić Trogrlić et al., 2021). The integrated design aims for redundancy and broad population coverage, combining authoritative central command with regulated private sector amplification and community-level dissemination. Croatia uses a combination of state-operated, commercial, and ad hoc warning systems: State-operated systems; public siren system (electromechanical and pneumatic sirens);112 Emergency Call System; National early warning and crisis management systems coordinated by civil protection authorities;

EU-Alert / Cell Broadcast–based system (introduced in line with EU requirements); Commercial systems - mobile network operators, which disseminate warning messages (SMS or cell broadcast) based on instructions from state authorities (Cesarec et al., 2020).

Source: A.2

A.3 Purposes of disaster communication

The core purposes of disaster communication in Croatia are explicitly defined in official legislation. The foundational Civil Protection System Act establishes that the entire system, including communication, exists to achieve the strategic goals of prevention, preparedness, response, and recovery for the protection of people, property, and the environment (Republic of Croatia, 2015, Article 3). Operationally, the Ordinance on the Method of Alerting and Warning the Population specifies the communicative functions designed to fulfill this mandate: to alert the population to imminent threats, warn of ongoing dangers, and provide information and instructions on necessary protective actions (Ordinance, 2018). Consequently, the documented purpose extends beyond mere information dissemination to being a directive and life-saving tool. It is designed to ensure public order, enable timely self-protection, and facilitate the coordinated execution of civil protection tasks by authorities at all levels, as coordinated by the National Directorate for Civil Protection (National Civil Protection Directorate, 2020).

Source: A.3

Czechia

A.1 Organisation and governance

Disaster communication is organized through a multi-channel system. Depending on the event, the governance structure involves various institutions (e.g. State office for Nuclear Safety, Regional Public Health Offices, the government which can establish the Central Crisis Staff), but it is mainly coordinated by the Ministry of the Interior and the General Directorate of the Fire Rescue Service (HZS ČR). Operational responsibility lies with regional Fire Rescue Services, which also coordinate with Integrated Rescue System (IZS) components. Municipalities are responsible for local preparedness and initial response, while regional authorities (kraje) coordinate at the regional level.

In: HZS ČR. (n.d.). Disaster Risk Management Summary Report – Czech Republic 2020.

Source: A.1

A.2 Warning systems

The Czech Republic uses several warning systems, including sirens (part of the nationwide public warning network), SMS alerts sent via mobile operators, and Cell Broadcasts messaging under development. The mobile app (Záchranka), integrated in all smartphones in the country, supports emergency alerts and allows push notifications from emergency services based on user location. Weather warnings issued by the Czech Hydrometeorological Institute are disseminated through both its own website (www.chmi.cz) and popular mobile weather apps (Počasí & Radar). Public TV/Radio serve as oficial communication channels during major incidents.

The 2023 Prague university shooting accelerated improvements in emergency messaging, leading to enhanced cooperation between emergency responders, universities, and mobile operators for rapid alerting (Cell Broadcasts system approved in 2025 by the government but not implemented yet).

In: In: SÚJB – MoI CZ. (n.d.).; SÚJB – MoI CZ – ČEZ. (2023).

Source: A.2

A.3 Purposes of disaster communication

Yes. Purposes include averting or reducing the immediate effects of risk arising from an emergency event, in particular threats to life, health, property, or the environment (Act No. 239/2000) or the threat of large-scale damage to property or the environment (Act No. 240/2000). The state sets and communicates to the population an effective policy of prevention, preparedness, and response being aware of the fact that failure to provide population with information of expected quality and speed, there is a risk of losing credibility and potentially uncontrolled spread of false and unverified information (Concept of Population Protection until 2025 with Outlook to 2030).

In: Act. 239/2000; 240/2000; MV ČR. (2021). Koncepce ochrany obyvatelstva do roku 2025 s výhledem do roku 2030.

Source: A.3.1

Estonia

A.1 Organisation and governance

Disaster communication in Estonia is organised through a multi-level, decentralised governance structure coordinated primarily by the Ministry of the Interior (Siseministeerium). The Government of the Republic leads crisis management policy (Emergency Act, §4), while the Ministry of the Interior sets legislation, coordinates national risk management and contingency planning, and supervises key subordinate agencies: the Rescue Board (Päästeamet) and the Police and Border Guard Board (Politsei- ja Piirivalveamet) (1). The Rescue Board is the central operational agency responsible for civil protection (elanikkonnakaitse), risk communication, emergency notification coordination, and regional crisis management (2). The Emergency Response Centre (Häirekeskus) handles 112 emergency calls and relays immediate danger alerts through the EE-ALARM system (3). Crisis committees operate at three administrative levels -- national (chaired by the Minister of the Interior), four regional committees (aligned with Rescue Board districts), and municipal committees (chaired by mayors) -- to coordinate preparedness and response (3)(4). The Government Office (Riigikantselei) coordinates national defence-related activities and strategic communication (1). Each ministry is responsible for crisis management within its own area of governance, and designated competent authorities lead the resolution of specific emergencies (5). Since 2018, the Civil Protection Concept has framed Estonia's approach to population protection, emphasising both state-led measures and community/individual self-preparedness (6).

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(1) Estonia -- European Civil Protection and Humanitarian Aid Operations. European Commission -- https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/estonia_en

(2) Mis on elanikkonnakaitse? -- Elanikkonnakaitse paedevusmudel. Päästeamet -- https://www.rescue.ee/et/juhend/elanikkonnakaitse-paedevusmudel/mis-on-elanikkonnakaitse

(3) Hädaolukorra seadus [Emergency Act]. Riigi Teataja -- https://www.riigiteataja.ee/akt/130122025020

(4) Regionaalsete kriisikomisjonide moodustamine, nende koosseis ja tookord [Government Regulation No. 72, 2021]. Riigi Teataja -- https://www.riigiteataja.ee/akt/123072021006

(5) Estonia: Capabilities, Organisations, Policies, and Legislation in Crisis Management and Disaster Response. Spassov, P. (2015). IT4Sec Reports -- https://www.isij.eu/article/estonia-capabilities-organisations-policies-and-legislation-crisis-management-and-disaster

(6) Civil protection also requires attention in the new government. KRUK (26.03.2025) -- https://www.kruk.ee/en/civil-protection-also-requires-attention-in-the-new-government/

Source: A.1

A.2 Warning systems

Estonia uses the integrated national public warning system EE-ALARM (riiklik ohuteavituse süsteem), which was comprehensively regulated by the September 2025 amendments to the Emergency Act and first tested nationwide on 14 May 2025 during the military exercise "Siil" (1)(2). EE-ALARM is defined as "a collection of protocols, processes, and technologies for delivering immediate danger alerts to the population" (HOS §13-1(2)) (3). The system operates through multiple simultaneous channels: location-based SMS, mobile applications ("Ole valmis!" and "Eesti äpp"), siren network (installed in 22+ towns), ticker text on ERR channels (ETV, ETV+, err.ee, "ERR Uudised" app), and supplementary channels such as loudspeakers, door-to-door notification, and drones when needed (1)(4). Additional information is provided through the crisis website kriis.ee, the preparedness website olevalmis.ee, and the state helpline 1247 (4). Commercial actors (telecom operators Telia, Elisa, Tele2) are legally obligated to transmit alerts, and private weather apps and media outlets supplement the state system. Community-based alerting occurs through social media (government agency accounts), village elders (külavanemad), the Defence League, and resilience centres (kerksuskeskused) (4)(5). A second nationwide test took place on 10 December 2025 (6).

References

(1) Public warning system EE-ALARM to be launched nationwide on May 14. Estonian Defence Forces -- https://mil.ee/en/news/public-warning-system-ee-alarm-to-be-launched-nationwide-on-may-14-during-exercise-siil/

(2) Estonia to ring in the first national emergency alert test. Estonian World (10.05.2025) -- https://estonianworld.com/security/estonia-to-ring-in-first-national-emergency-alert-test/
(3) Hädaolukorra seadus [Emergency Act], §13-1. Riigi Teataja -- https://www.riigiteataja.ee/akt/130122025020
(4) Ohuteavitus ehk EE-ALARM. Olevalmis.ee -- https://www.olevalmis.ee/ohuteavitus-ehk-ee-alarm
(5) Mis on elanikkonnakaitse? Päästeamet -- https://www.rescue.ee/et/juhend/elanikkonnakaitse-paedevusmudel/mis-on-elanikkonnakaitse
(6) Nationwide public warning test on December 10. Olevalmis.ee -- https://www.olevalmis.ee/en/news/public-warning/nationwide-public-warning-test-on-december-10

Source: A.2

A.3 Purposes of disaster communication

Yes. The purposes of disaster communication are explicitly described in Estonian law and policy documents. The Emergency Act §10(2) defines the purpose of risk communication as "increasing awareness of emergencies and preparedness for them" through informing the public about threats and providing behavioural instructions (1). The Civil Protection Concept (2018) and the Rescue Board's competency framework state that "the goal of civil protection is to protect people and society in crisis situations, in both peacetime and wartime" and that "the goal of developing civil protection is to increase the resilience (kerksus) of the entire society, meaning the ability to adapt to a changed environment" (2). The EE-ALARM system's stated purpose on olevalmis.ee is "to save and protect people's lives. The faster we can deliver behavioural instructions in life- and health-threatening situations, the better people can protect themselves and their loved ones" (3). The Civil Protection Action Plan 2024-2027 assigns distinct purposes to civil protection funding: increasing population awareness and self-preparedness, strengthening local crisis capacity, developing comprehensive public warning, and building institutional resilience (4).

References

(1) Hädaolukorra seadus [Emergency Act], §§10, 12, 13-1. Riigi Teataja -- https://www.riigiteataja.ee/akt/130122025020
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(3) Korduma kippuvad küsimused -- Ohuteavitus ehk EE-ALARM. Olevalmis.ee -- https://www.olevalmis.ee/korduma-kippuvad-kusimused
(4) Civil protection also requires attention in the new government. KRUK -- https://www.kruk.ee/en/civil-protection-also-requires-attention-in-the-new-government/

Source: A.3

Germany

A.1 Organisation and governance

Disaster communication in Germany is organized on a federal basis. In the event of defense as well as in urgent cases, the federal government (via the Federal Office of Civil Protection and Disaster Assistance; BBK) assumes responsibility for warning the general population. Responsibility for disaster protection in peacetime, however, lies with the sixteen federal states, which may delegate certain tasks to municipalities within their own jurisdiction. In this process, the federal states carry out the warning on behalf of the federal government. In addition, municipalities are also responsible for issuing warnings in everyday situations that are relevant to the population (Geier, 2021; Künzer & Tomczyk, 2022).

In general, responsibility follows the principle of subsidiarity. This means that higher levels intervene only when lower levels have reached the limits of their capacity (Szönyi et al., 2022). To ensure that warnings are effectively communicated to the population, the BBK operates the Modular Warning System (MoWaS). The so-called MoWaS is the central technical platform for nationwide warnings via various warning channels (TV, radio, apps, cell broadcast). The BBK also develops guidelines, conducts research, and carries out risk analyses to improve public warning systems (https://www.bbk.bund.de/EN/Home/home_node.html).

Source: A.1

A.2 Warning systems

In Germany, a broad warning mix is used that combines governmental, commercial, and ad hoc systems. The central element is the Modular Warning System (MoWaS), which disseminates warnings simultaneously via apps, radio, television, internet services, and sirens. In addition, the state uses cell broadcast for location-based immediate alerts, as well as traditional warning channels such as radio announcements and loudspeaker vehicles, which are considered reliable means of communication particularly in the event of infrastructure failures (Künzer & Tomczyk, 2022).

Systems such as NINA, Katwarn, BIWAPP, DWD WarnWetter, social media, and municipal websites further increase reach and enable target-group-specific information (Künzer & Tomczyk, 2022).

In large-scale emergencies, ad hoc solutions are also used, such as satellite-based communication systems (e.g., STARLINK), reactivated analog public-authority radio systems, or spontaneous information networks within the population (DKKV, 2024).

The combination of these diverse channels ensures that warnings reach as many people as possible even under difficult conditions and that the population remains reliably informed and capable of taking action.

Source: A.2

A.3 Purposes of disaster communication

Yes, the objectives are described in several official documents, though not in a single, central piece of legislation, but rather across various guidelines.

Most notably, ISO standard 22322 serves as an official framework for authorities in the generation of warnings. It specifies, for example, that appropriate and target-group-oriented action recommendations must be provided and that suitable warning channels should be selected in order to disseminate warnings effectively.

The Risk Communication Handbook published by the BBK and the Federal Institute for Risk Assessment (BfR) defines concrete communication objectives, such as knowledge transfer, risk awareness, and behavioral goals (e.g., triggering protective actions).

The research volume SAWaB (Künzer & Tomczyk, 2022) also elaborates on functional goal descriptions, that is, the specific effects communication is intended to achieve—for example, ensuring that affected individuals understand the hazard. Other guidelines have already been outlined elsewhere in this synopsis (see A.1 and A.2 for details).

Source: A.3

Greece

A.1 Organisation and governance

Administrative Levels of Communication

E.S.K.E.DI.K., through its Involved Agencies Unit (Unit3-COMRES), acts as the central node connecting all three administrative tiers.

National Level: At the top tier, E.S.K.E.DI.K. coordinates communication among central state ministries, the Armed Forces, and national scientific institutes. This includes the National Meteorological Service (E.M.Y.) and the Geodynamic Institute of the National Observatory of Athens, ensuring that national warnings (like extreme weather or tsunami alerts) are received and distributed nationwide.

Regional Level: Communication flows to the regional level through continuous contact with the Regional Civil Protection Operations Centers (Π.Ε.ΚΕ.Π.Π.), Regional Civil Protection Coordinators, and Vice Governors (Αντιπεριφερειάρχες). The Fire Corps also maintains its own vertical communication with its Regional Operations Centers (ΠΕ.Κ.Ε.) to mobilize regional firefighting forces.

Local Level: Local communication is explicitly integrated into E.S.K.E.DI.K. by embedding two representatives from the Local Government Organizations (O.T.A.) directly into Unit3-COMRES. These representatives communicate directly with Mayors and Municipal Civil Protection Departments. Their primary role is to gather local intelligence and transmit requests for local resources, such as earth-moving machinery or water trucks, to assist in the disaster response

Source: A.1.6

A.2 Warning systems

The primary warning systems used in Greece, as detailed in the provided legal framework, are state-operated and heavily centralized through the National Coordination Center for Operations and Crisis Management (E.S.K.E.DI.K.).

The "112" Mass Public Warning System The most prominent system for alerting the public is the European Emergency Number 112, operated by E.S.K.E.DI.K.'s Unit5-112. Upon the order of the General Secretary for Civil Protection (or the Commander of E.S.K.E.DI.K.), this system is used for mass, geo-targeted warnings to citizens in areas threatened by natural, technological, or other disasters. It utilizes multiple delivery channels:

Cell Broadcast: Sends emergency alerts directly to all mobile phones within a specific geographic area.

Alternative Digital Channels: Sends voice messages to landlines or mobile phones, SMS, and emails to citizens who have registered for the service.

2. Tsunami and Seismic Warning Systems

Tsunami Warnings: The National Tsunami Warning Center of the Geodynamic Institute of the National Observatory of Athens issues specific Tsunami Warning Signals, including "Alert (Watch, Advisory)" and "Communication Test".

Earthquake Alerts: The same Geodynamic Institute issues official announcements for any earthquake occurring within the Greek territory with an intensity of 4.0 on the Richter scale or higher.

3. Meteorological and Weather Warning Systems The Hellenic National Meteorological Service / National Meteorological Center (E.M.Y./E.M.K.) is responsible for weather-related warnings. They issue standard daily forecasts as well as Extraordinary Bulletins of Dangerous Weather Phenomena (έκτακτο δελτίο επικίνδυνων καιρικών φαινομένων) and Extraordinary Bulletins of Weather Deterioration.

4. Fire Risk Warning Systems

Fire Risk Prediction Map: During the fire season, a Special Team within the General Secretariat for Civil Protection issues a daily map predicting the fire risk for the following day, which is distributed to all relevant authorities to adjust their operational readiness.

Digital Fire Alert and Response Service: Internally, emergency responders use a specialized digital system (Σύστημα Ψηφιακής Υπηρεσίας Ειδοποίησης και Αντιμετώπισης Πυρκαγιάς) to monitor fire outbreaks in real-time across the country and issue internal alerts for mobilization.

5. International and Satellite Warning Systems For large-scale disasters, the state relies on European warning and monitoring systems:

CECIS: The Common Emergency Communication and Information System of the European Commission is monitored constantly for international alerts.

Copernicus: The state can activate the EU's Copernicus Emergency Management Service Mapping to produce satellite maps for early assessment and warning in disaster-stricken areas

Source: A.2.4

A.3 Purposes of disaster communication

The purposes of disaster communication are described in official documents, mainly within the framework of the National Crisis and Hazard Management Mechanism.

Law 4662/2020 defines:

Early warning, as the provision of timely and adequate information to enable specific actions for risk reduction and preparedness.

Coordination, as the organization and monitoring of actions and ensuring interoperability among involved actors.

Preparedness, including early and effective warnings and public awareness measures.

The overall objective of protecting life, health, property, environment and critical infrastructure.

These provisions establish communication as a core instrument for risk reduction, response and public protection.

Reference: Law 4662/2020, Articles 1, 2 and 4

Source: A.3.1

Italy

A.1 Organisation and governance

The Italian disaster communication structure is governed by the Department of Civil Protection (DPC), which sets national policy and protocols.

At the national level, the DPC issues the primary risk bulletins and manages centralized warning systems, such as IT-alert, a Cell Broadcast system sending direct public alerts based on official regulations (only operating for specific major risks-see below) . Regional Civil Protection structures adapt these national warnings into localized bulletins, specifically for weather and hydrogeological risks, coordinating response within their territories. The local (municipal) authority, headed by the Mayor, is responsible for executing the final warning and activating local emergency plans.

Private and non-governmental actors play complementary roles. Telecommunications operators are legally required to disseminate IT-Alert messages under the DPCM 7 February 2023. Public service media, particularly RAI, contribute through Comunicazioni di Pubblica Utilità, regulated by AGCOM, which allow the broadcast of institutional messages of public interest during emergencies. Volunteer organisations, NGOs, and community groups further support outreach and communication with vulnerable populations.

Source: A.1.6

A.2 Warning systems

The primary state-operated warning system in Italy is the National Civil Protection System (Dipartimento della Protezione Civile), regulated by the Civil Protection Code (Legislative Decree No. 1/2018).

Activation and analysis of risks (hydro-geological, hydraulic, etc.) are handled by Regional Functional Centers, as established by the DPCM of February 27, 2004. These centers issue warnings using the tiered color codes (Yellow, Orange, Red). Dissemination includes official bulletins to local authorities, social media and traditional media. The newest system, IT-Alert , uses Cell Broadcast technology to directly notify citizens in danger areas about major emergencies, as defined by the DPCM of February 7, 2023, ensuring rapid, widespread communication during critical events. Following nationwide testing that concluded in late 2023, the system is now fully operational for specific, major emergency scenarios, covering critical threats such as the collapse of large dams, significant industrial accidents, and major volcanic events.

Source: A.2.4

A.3 Purposes of disaster communication

Official aims include: fostering risk awareness and a “culture of civil protection”; enabling timely protective actions (self-protection and evacuation/shelter); ensuring consistent information across authorities; and protecting vulnerable groups by providing clear, accessible instructions. The Civil Protection Code lists non-structural prevention activities such as public information on risks and behaviour, training/exercises, and community engagement to strengthen resilience. The IT-Alert directives add transparency, subsidiarity, and redundancy as principles to maximise coverage during severe, imminent or ongoing events. (D.Lgs. 1/2018 art. 2(4)(e)–(g); IT-Alert coordinated directives 2020/2023). https://www.protezionecivile.gov.it/it/normativa/decreto-legislativo-n-1-del-2-gennaio-2018--codice-della-protezione-civile/.

Source: A.3.1

Kosovo

A.1 Organisation and governance

National: The Emergency Management Agency (EMA) (under the Ministry of Internal Affairs) coordinates disaster communication via the 24/7 Operations/112 Centre, liaising with ministries and national services. The Hydrometeorological Institute of Kosovo (IHMK) issues official meteorological/hydrological warnings that feed national and local channels. Regional/Local: Municipal Emergency Headquarters/Committees adapt EMA/IHMK messages to local conditions, inform residents and critical facilities, and coordinate police, fire/rescue and health services. Mayors lead local communication in line with approved emergency plans.
Private/NGO actors: Telecom operators (regulated by ARKEP) support distribution through electronic communications where applicable. Public service media (e.g., RTK) and other broadcasters relay official guidance; private outlets and community channels amplify messages under institutional direction. NGOs (e.g., Red Cross of Kosovo) and volunteer groups support outreach to vulnerable populations and assist on the ground, coordinated by municipalities/EMA.

Source: A.1.6

A.2 Warning systems

Primary state-operated systems:• IHMK warnings — the Hydrometeorological Institute issues official meteorological/hydrological warnings as the statutory source under Law 06/L-035. EMA and municipalities use these bulletins operationally. Gazeta Zyrtare+1

• EMA notices via 112/operations — the Emergency Management Agency (under MoIA) coordinates warning/notification and issues situation notices; 112/operations centres support dissemination to ministries, agencies and municipalities, per the EMA law. AME+1

• Public broadcasting (RTK) — RTK must broadcast emergency information without delay and free of charge (Law 04/L-046, Art. 14), ensuring rapid public reach. CPS RKS Gov.

Activation & dissemination:

IHMK triggers warnings based on technical thresholds; EMA activates inter-institutional notification and public notices (web/posts, coordination with municipalities). Municipal emergency structures adapt messages locally. RTK and other broadcasters relay official guidance; additional channels operate within the telecom framework and spectrum rules.

Source: A.2.4

A.3 Purposes of disaster communication

In Kosovo, disaster communication serves to protect life, health, property and the environment, reduce vulnerability, and enable timely protective action by authorities and the public. The protection-and-rescue law assigns core tasks of notification, warning/alarm and giving instructions, and requires that risk and protection information be made public and that populations in endangered areas be informed (principle of information). The EMA law tasks the Agency (and its 112/operations centres) to organize monitoring and warning systems, a unified communication system, and to inform the community and media during emergencies. IHMK's law establishes the official source of forecasts and warnings that feed communication to national and municipal levels. Together, these acts frame purposes that include risk awareness, clear actionable guidance, support to vulnerable groups via municipal structures, and continuity of essential services during response and recovery.

Source: A.3.1

Lithuania

A.1 Organisation and governance

In Lithuania, disaster communication and governance are organized through a multi-level system defined by the Law on Crisis Management and Civil Protection of the Republic of Lithuania (amended in 2024). The governance structure involves the Government, the National Security Commission, the National Crisis Management Centre, the Ministry of the Interior, and the Fire and Rescue Department (PAGD). The Fire and Rescue Department manages the technical side of the national warning infrastructure and disseminates verified information to the population. Municipalities operate their own crisis operation centres, responsible for local communication, alerting residents, and cooperating with national authorities.

Source: A.1

A.2 Warning systems

Lithuania's main warning system is the Public Warning and Information System (GPIS), managed by the Fire and Rescue Department (PAGD). It sends alerts via mobile messages, sirens, radio, and TV. The network has 888 sirens (covering 54% of the population), with 198 new ones being added.

Warnings are also broadcast by public service media (LRT), while municipalities, utilities, and private operators use additional SMS, social media, or internal alert systems.

Source: A.2

A.3 Purposes of disaster communication

Yes. The purposes of disaster communication in Lithuania are clearly defined in official legal documents.

Main sources:

Law on Crisis Management and Civil Protection (2024) – establishes that disaster communication aims to protect life, health, property, and the environment by ensuring timely and reliable information to the public and authorities.

Order of the Director of the Fire and Rescue Department No. 1-342 of 5 December 2011 (as amended 10 June 2022) – "Regulations of the Public Warning and Information System (GPIIS)".

Explanation:

The GPIIS Regulations define the core purposes of disaster communication as:

timely warning of imminent or ongoing emergencies;

informing the population about protective measures and safe behavior;

enabling coordination among authorities for consistent information flow;

ensuring public trust and preparedness through verified, centralized messaging.

Source: A.3

Netherlands

A.1 Organisation and governance

In the Netherlands, disaster communication is organized through a structured, multi-level governance system to ensure coordinated and timely public information during crises.

National level: The Ministry of Justice and Security, via the NCTV, sets overall policy, develops guidelines, and coordinates national-level crisis communication. The Rijksvoorlichtingsdienst (RVD) ensures consistent government messaging during nationwide emergencies. NL-Alert is managed nationally to provide immediate warnings to the public.

Regional level: Safety Regions (Veiligheidsregio's) implement regional crisis communication plans, coordinate emergency services, and operate Joint Information Centers (JICs) to centralize information dissemination.

Local level: Mayors, as bevoegd gezag, are responsible for issuing local alerts, giving instructions to residents, and liaising with regional and national authorities.

Private and non-governmental actors: Telecom providers, public broadcasters, NGOs, and community networks assist in disseminating alerts and amplifying messages.

This governance structure ensures timely, accurate, and coordinated communication across all administrative levels.

Source: A.1

A.2 Warning systems

In the Netherlands, warning systems are multi-layered and involve state, commercial, and ad hoc mechanisms to inform the public during emergencies:

1. State-run systems:

NL-Alert – Mobile phone alert system for immediate threats (floods, chemical incidents, terrorism).

Sirens – Outdoor warning sirens for chemical, nuclear, or other large-scale emergencies (mainly in industrial or flood-prone areas).

Public broadcasting alerts – Radio, TV, and government websites disseminate official messages.

2. Commercial systems:

Some telecom providers and apps (e.g., local emergency apps, push notifications) collaborate to relay official warnings.

Social media channels of municipalities or broadcasters provide real-time updates.

3. Ad hoc systems:

SMS or email lists maintained by municipalities or businesses for targeted alerts.

Local community networks, NGOs, and workplace notification systems.

This multi-channel approach ensures wide reach, redundancy, and rapid public awareness during disasters.

Source: A.2

A.3 Purposes of disaster communication

Yes. In the Netherlands, the purposes of disaster communication are explicitly described in official documents and guidelines, both in law and policy frameworks.

Legal basis: The Wet veiligheidsregio's (Wvr, 2010) mandates that regional safety authorities (Veiligheidsregio's) and mayors (bevoegd gezag) are responsible for informing the public about risks and incidents, ensuring safety and minimizing harm. Article 10 emphasizes public information as a core task of crisis management.

Operational guidance: NCTV documents, including Risk and Crisis Communication and the NL-Alert toolkit, outline objectives such as:

Providing timely and accurate information to the public.

Reducing panic and confusion during emergencies.

Guiding behavior through safety instructions, evacuation orders, or precautionary measures.

Ensuring coherent and coordinated messaging across local, regional, and national levels.

These documents frame disaster communication as both a protective and preventive tool to safeguard lives and property.

Source: A.3

North Macedonia

A.1 Organisation and governance

In North Macedonia, disaster communication governance is based on the Law on Crisis Management. The Crisis Management Center (CMC) is the central body legally mandated to manage public information during a crisis.

Key responsibilities of the CMC include:

- Operating the 112 European emergency number as the primary public contact point.
- Managing early warning systems, which involves implementing a modern cell broadcast system and modernizing the existing sirens.
- Coordinating with all relevant institutions to ensure a unified public message.
- Disseminating information to the media and the public through official statements and press conferences.

While a National Platform for Disaster Risk Reduction (DRR) was intended to serve as a broad consultative body to enhance resilience, it has not been functional in recent years.

Source: A.1

A.2 Warning systems

In North Macedonia, a multi-layered approach is used for public warnings, combining modern state-managed systems with traditional alarms and informal ad hoc networks.

State Warning Systems (Official)

These are the government-mandated systems for official alerts:

- MK-ALERT (Cell Broadcast): This is the primary national public warning system, fully aligned with the EU-Alert standard. It is initiated by the Crisis Management Center (CMC) based on data from the 112 emergency number. This system sends geo-targeted, high-priority alerts directly to all mobile phones within a specific at-risk area. It does not require an app and works even if networks are congested.
- Public Alert Sirens: The traditional civil protection system. A network of electronic and mechanical sirens, primarily managed by the Protection and Rescue Directorate (PRD), is in place. These are intended for major hazards like industrial accidents, dam failures, or floods and are undergoing modernization to be fully integrated with the 112/CMC system.
- Specialized Agency Warnings:
- Hydrometeorological Service (УХМР): This is the most active warning body. It issues daily color-coded warnings (yellow, orange, red) for severe weather events like heatwaves, heavy rain, strong winds, and floods, which are then disseminated by the media and state institutions.
- Institute of Public Health: Issues public health alerts and instructions during epidemics or radiological incidents.
- Public Service Media (MRT): The national broadcaster, Macedonian Radio-Television, is legally obligated to interrupt its programming to broadcast any urgent, official alerts and instructions from the CMC or other state authorities.

Source: A.2

A.3 Purposes of disaster communication

The Crisis Management System (CMS) framework, primarily established by the Law on Crisis Management, emphasizes prevention, early warning, and response as core principles. Communication is central to achieving these, particularly for building resilience and raising risk awareness before disasters strike. The Crisis Management Center (CMC) is legally tasked with "risk communication and awareness raising," while the Protection and Rescue Directorate (PRD) conducts public campaigns based on national risk assessments.

Operationally, communication serves several critical purposes during an event:

- Early Warning: The MK-ALERT system, activated by the CMC via the 112 number, provides immediate, geo-targeted warnings to enable protective actions. Siren systems supplement this for specific hazards.
- Informing the Public: The CMC is legally mandated to provide timely, accurate, and coordinated information to the public and media, aiming to reduce uncertainty and guide safe behaviour.
- Coordination: Clear communication ensures effective coordination among all responding entities (CMC, PRD, Ministries, local authorities, NGOs) for a unified effort.
- Protecting Life and Health: Ultimately, all communication aims to fulfill the core mandate of protecting citizens' lives, health, and property.

Overall, North Macedonian documents treat communication as a continuous process crucial for reducing vulnerability, informing the public, coordinating response efforts, and guiding protective actions during crises.

Source: A.3.1

Norway

A.1 Organisation and governance

Disaster communication is coordinated by the Ministry of Justice and Public Security (JD), with operational responsibility delegated to the Directorate for Civil Protection (DSB). Municipalities handle local preparedness, county governors coordinate regionally.

Source: A.1

A.2 Warning systems

Norway uses the Emergency Alert System (Mobilvarsling), integrated into all mobile networks since 2022. Other systems include Varsom.no for natural hazards, Yr.no for weather, radio/TV emergency broadcasts, and sirens (civil defense alarms).

Source: A.2

A.3 Purposes of disaster communication

Yes. Purposes include protecting life/health, reducing uncertainty, maintaining trust, raising risk awareness, and enabling self-protection (DSB, 2016)

Source: A.3.1

Poland

A.1 Organisation and governance

Poland's disaster communication is embedded in its multi-level crisis management system defined by the Act on Crisis Management (2007). The Government Centre for Security (RCB) acts as the national coordination body, operating 24/7 and reporting directly to the Prime Minister. RCB integrates monitoring inputs from sectoral agencies and activates the official public warning system "Alert RCB". At the regional level, Voivodeship Crisis Management Centres (WCZK) under the governors coordinate information flow and issue regional alerts, while local governments manage communication with residents through municipal crisis teams, local media and sirens. Technical and procedural interoperability is ensured through cooperation with the Institute of Meteorology and Water Management (IMGW-PIB), the Ministry of Interior and Administration (MSWiA), and public broadcasters. This governance structure combines vertical coordination (national–regional–local) with horizontal cooperation among institutions.

https://www.gov.pl/web/rcb-en

https://imgw.pl/en/

https://www.gov.pl/web/mswia/regionalny-system-ostrzegania-

Source: A.1

A.2 Warning systems

State, national: Alert RCB (geo-targeted SMS to users in affected areas; official public warning), RSO – Regional Warning System (TV/radio MUX-3 tickers, mobile app, voivodeship portals), IMGW-PIB warnings (meteorological/hydrological alerts; website/app), civil-defence sirens (acoustic signals), and official government portals plus social-media accounts (RCB, voivodes, municipalities).

State, regional/local: WCZK and municipalities distribute notices via local websites, SMS lists/newsletters, PA/loudspeakers, electronic road VMS signs, and community boards.

Commercial/partner channels: nationwide TV/radio and major online platforms rebroadcast official messages; mobile network operators deliver RCB alerts under regulation; private weather apps may mirror IMGW data (informational only).

Ad hoc/contingency: door-to-door announcements by services, temporary hotlines, volunteer/NGO outreach for vulnerable groups, and on-site loudspeakers at events/incidents.

These channels are used in combination to ensure redundancy, reach, and accessibility.

Source: A.2

A.3 Purposes of disaster communication

Disaster communication in Poland serves to: (i) protect life and health by prompting timely, protective actions (seek shelter, evacuate, avoid travel); (ii) reduce vulnerability by translating hazard intelligence (e.g., IMGW-PIB warnings) into clear, actionable guidance for the public; (iii) maintain public order and continuity of essential services through coherent instructions from competent authorities; (iv) support coordination across national–regional–local levels (RCB → Voivodes/WCZK → municipalities) and between sectors (telecoms, media, responders); (v) ensure inclusivity and accessibility via multi-channel delivery (Alert RCB SMS, RSO/TV/radio, web, sirens) and plain-language messaging with accessibility features; (vi) counter misinformation by privileging verified, authoritative sources; and (vii) enable recovery and learning, including post-event updates and feedback that improve future preparedness. Collectively, these purposes align warning practice with legal duties under the Crisis Management Act and EU public-warning requirements (EECC Art. 110).

Source: A.3.1

Portugal

A.1 Organisation and governance

Disaster communication in Portugal is an integral part of the Integrated System of Protection and Rescue Operations (SIOPS) and is coordinated by the National Authority for Emergency and Civil Protection (ANEPC), a central service of the State's direct administration, under the Ministry of Home Affairs. The ANEPC's headquarters is in Lisbon, out of which operate the National Command, 5 Regional Commands, and 24 Sub-Regional Commands in mainland Portugal. The governance structure involves the ANEPC at the national level, which coordinates with regional and local entities, as well as with other security and emergency forces and services, such as INEM (National Institute of Medical Emergency), police forces, firefighters and national maritime authority bodies.

Source: A.1

A.2 Warning systems

Here are some of the main alert systems used in Portugal:

Civil Protection Warnings — sent by ANEPC via geolocated SMS: "AvisoPROCIV"

Special Alerts — managed by ANEPC for internal communication within the civil protection structure.

Coastal sirens (for tsunami risk) and other municipal sound devices.

Cell Broadcast — being implemented under the National Civil Protection Strategy 2030, to send alerts to mobile phones within seconds.

Local SMS systems — e.g., Lisbon Civil Protection's SMS system for preventive and action alerts.

Web applications — such as fogos.pt, for fire monitoring and alerts.

the "MAI Mobile" app

Land Based SMS is, therefore, the most wide-ranging system in place for broadcasting warnings. Messages are addressed to any citizen who is in the affected area, including roaming citizens (who will also receive the SMS in Portuguese and English).

References

https://www.pgdlisboa.pt/leis/lei_mostra_articulado.php?artigo_id=2999A0007&nid=2999&tabela=leis&pagina=1&ficha=1&so_miolo=S&nversao=

https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/portugal_en

Source: A.2

A.3 Purposes of disaster communication

The objectives of disaster communication in Portugal are clearly defined in official documents, including the National Strategy for Preventive Civil Protection 2030, Decree-Law No. 2/2019, and various Civil Protection Emergency Plans.

Key Objectives:

Enhance Resilience: Promote individual and community preparedness to act according to safety best practices.

Improve Preparedness and Response: Standardize procedures for monitoring, alerting, and responding to risks.

Timely and Effective Information: Ensure accurate, prompt information reaches populations at risk, enabling protective actions.

Public Engagement: Raise awareness and involve citizens in risk reduction and civil protection strategies.

Coordination: Ensure institutional cooperation among all entities involved in emergency response.

References

National Strategy for Preventive Civil Protection 2030 — defines five strategic objectives, including citizen engagement. https://files.dre.pt/1s/2021/08/15500/0013300156.pdf

Decree-Law No. 2/2019 — establishes the legal framework for monitoring, alert, and public warning systems and ANEPC responsibilities. https://diariodarepublica.pt/dr/detalhe/decreto-lei/2-2019-117726476

Civil Protection Emergency Plans — provide detailed guidelines on operational communication procedures at national, regional, and municipal levels. https://planos.prociv.pt/Documents/130313331490899189.pdf?

Source: A.3

Romania

A.1 Organisation and governance

Romania frames disaster communication across two complementary notions used throughout its current strategies and laws: risk communication and early warning. In the National Disaster Risk Reduction Strategy (SNRRD) 2024–2035, terminology follows UNDRR: early-warning systems are integrated systems that combine monitoring/forecasting, risk assessment, communication, and preparedness so that people and institutions can take timely protective action. These terms are adopted as the national reference definitions (and are cross-referenced to HG 557/2016 and HG 768/2016 for institutional roles).

Practically, Romania operationalizes disaster communication through: (a) preventive information and public education (risk communication), and (b) warning/alerting the public (e.g., RO-ALERT) delivered in a coordinated "single-voice" approach specified in the Strategia națională de comunicare și informare publică pentru situații de urgență [National Strategy for Public Communication and Information for Emergency Situations] (2008).

Source: A.1

A.2 Warning systems

Romania operates a multi-channel disaster warning system, combining modern digital alerts with traditional methods to ensure redundancy and broad coverage. The core system is RO-ALERT, established in 2017. It uses Cell Broadcast technology to send geo-targeted alerts instantly to all mobile phones in the affected area. Messages appear automatically on screens, even during network congestion, and reach both Romanian and roaming users. Complementing RO-ALERT are traditional siren systems, still used at county and local levels, particularly for floods or industrial accidents. Mass media also plays a key role: television and radio broadcasters are mandated to relay emergency warnings issued by IGSU or other authorities. In parallel, the 112 Emergency Call System provides bidirectional communication, allowing citizens to report incidents and receive guidance. Additionally, Romania leverages online platforms and social media managed by DSU, IGSU, and local inspectorates to amplify official messages. This layered approach ensures that warnings can reach the population even under challenging conditions, combining modern mobile alerts, traditional sirens, broadcast media, and digital platforms into a comprehensive national system.

Source: A.2

A.3 Purposes of disaster communication

Romanian disaster management documents frame communication as both a preventive tool and an operational necessity. The SNMSU framework emphasizes prediction, prevention, and preparedness as guiding principles. Communication is seen as central to building resilience before disasters strike. Local authorities are responsible for hazard mapping and preparedness communication, supported by data from specialized agencies. RO-ALERT messages, mandated by GEO 72/2017 and NCES 23/2022, provide short, clear instructions to guide protective actions like sheltering or evacuation. Templates are available in Romanian, English, and Hungarian to ensure inclusivity. Awareness-raising campaigns are carried out nationally by DSU and IGSU through traditional and digital media. These campaigns aim to educate the public about risks, build trust in official sources, and reduce the influence of misinformation. Overall, Romanian documents treat communication as a continuous process for reducing vulnerability and guiding protective action in crises.

Source: A.3.1

Serbia

A.1 Organisation and governance

Disaster communication in Serbia is structured through a multi-level governance system that integrates national, regional, and local authorities with public, private, and civil-sector actors.

At the national level, the Sector for Emergency Management (SEM) within the Ministry of Interior serves as the central coordinating body, managing the national alert and information system and operating the 112 emergency number. It collaborates with specialised agencies like the Republic Hydrometeorological Service (RHMZ), the Seismological Survey of Serbia, and relevant sectoral ministries to issue official warnings and ensure unified public messaging. The National Crisis Response Centre provides technical and informational infrastructure for cross-sector coordination during emergencies. At the regional level, administrative districts act as intermediaries, transmitting national guidance to municipalities and harmonizing communication among local headquarters for protection and rescue. At the local level, municipal protection and rescue headquarters are responsible for implementing early warnings, public alerts, and community-level information campaigns. They rely on local radio systems, sirens, and public-address networks to ensure reach. Public service media (notably RTS and RTV) play a legally mandated role in broadcasting official warnings and educational content, as required by the Law on Public Information and Media and relevant decrees. Private media outlets and telecommunication operators complement these efforts by sharing official messages and supporting risk awareness, training, and citizen engagement.

Source: A.1.6

A.2 Warning systems

In Serbia, the primary state-operated warning systems are structured around both technological and institutional components to ensure rapid alerting across the country:

Siren-based public alert system: These are installed in urban and industrial areas and designed to provide immediate audio warnings to the public. Activation is managed by the Sector for Emergency Management (SEM), often in coordination with local protection and rescue headquarters. Signals are typically pre-coded for types of hazards (e.g., air raid, flood, industrial accident) and followed by instructions via radio or mobile messaging.

112 European emergency number: The national call center receives hazard reports and can trigger official alerts. SEM operators coordinate activation of alerts through municipal and local authorities.

Telecommunication-based alerts (SMS/Cell Broadcast): This system allows authorities to send hazard warnings directly to mobile phones in affected areas. SEM coordinates content and target zones, working with telecom operators to disseminate messages.

Media broadcast: Public service media (RTS, RTV) are legally mandated to transmit official warnings. Private media also relay official information, often under coordination with SEM.

Specialised monitoring systems: Sectoral agencies such as the Republic Hydrometeorological Service (RHMZ) and Seismological Survey of Serbia operate automated detection and monitoring systems. Alerts from these systems feed directly into SEM and local authorities for dissemination.

Activation & Dissemination: The process is hierarchical: hazard detection → assessment by SEM or competent sector → decision to alert → transmission via sirens, mobile alerts, media, and local networks → follow-up guidance and updates. Coordination is ensured through legal mandates in the Law on Disaster Risk Reduction and Emergency Management (Official Gazette RS No. 87/2018) and operational procedures in the National Strategy for Protection and Rescue in Emergencies (2011).

Source: A.2.4

A.3 Purposes of disaster communication

Mitigating vulnerability: Early warnings and timely information aim to reduce exposure and potential losses among populations, critical infrastructure, and property. The Law on Disaster Risk Reduction and Emergency Management (Official Gazette RS No. 87/2018) explicitly frames alerting as a preventive measure to limit human, environmental, and material harm.

Raising risk awareness and preparedness: Public information campaigns, educational programs, and official messaging aim to inform citizens about potential hazards, safe behaviours, and self-protective measures. The 2011 National Strategy for Protection and Rescue in Emergencies highlights awareness-raising as a key function of disaster communication.

Protecting vulnerable groups: Communication systems are designed to reach populations with special needs, including children, elderly, persons with disabilities, or residents in high-risk areas. Local authorities and SEM coordinate targeted dissemination to ensure inclusivity.

Supporting coordinated response and decision-making: Disaster communication facilitates timely interaction among authorities, sectoral agencies, and emergency services, enabling efficient deployment of resources and coherent situational awareness during crises.

Maintaining public trust and social stability: Transparent and authoritative messaging helps prevent panic, misinformation, and rumour propagation during emergencies, contributing to social cohesion and resilience.

Integration with multi-channel systems: Use of sirens, SMS alerts, media broadcasts, social media, and community networks ensures that messages are disseminated widely and redundantly to enhance overall effectiveness.

Source: A.3.1

Slovenia

A.1 Organisation and governance

Disaster communication in Slovenia is organized within the system of protection against natural and other disasters, coordinated by the Administration for Civil Protection and Disaster Relief (URSZR). Responsibilities and communication flows are structured at national, regional, and local levels, supported by both public and private actors.

1. National Level - Lead Authority URSZR = Uprava RS za zaščito in reševanje (under the Ministry of Defence). Functions: Central coordination of warning and public information, operation of the national public warning system (sirens and SI-ALARM mobile alerts), issuing, approving, or forwarding protective action instructions to the population, and managing the 112 emergency communication system. Supporting National Institutions:

- ARSO (Environmental Agency) issues meteorological, hydrological, and environmental warnings communicated to the public and URSZR.

- NIJZ (National Institute of Public Health) provides health emergency and risk communication, such as for epidemics and chemical contamination.

- AKOS (Agency for Communication Networks and Services) regulates communication infrastructure for emergency alerts.

- Mobile Network Operators transmit SI-ALARM cell broadcast warnings.

2. Regional Level - ReCO – Regional Notification Centers 112 (13 centers nationwide). Regional centers link national command with local action. Functions: Operate 24/7 dispatch and communication, receive emergency calls and information from responders and the public, and relay and adapt national warnings for regional coordination. Facilitate communication among fire and rescue services, police, medical emergency services, and municipal civil protection headquarters.

3. Local Level – Local authorities translate national guidance into concrete, context-specific instructions for the population. Institutions include the Municipal Civil Protection Headquarters (Štab CZ), the mayor (legally responsible for local protective measures), and local volunteer and professional emergency services, especially fire brigades. Functions include local dissemination of warnings and instructions, direct communication with residents through municipal websites, social media, and local radio stations.

4. Role of Private, Non-Governmental, and Public Service Media Actors: Public service media (RTV Slovenija) is legally required to broadcast emergency warnings immediately, without editorial delay, ensuring an authoritative national information flow. Commercial TV, radio, and online media amplify messages and provide real-time reporting to increase public reach. NGOs (e.g., Rdeči križ, Karitas, mountain rescue service) also contribute.

Source: A.1.6

A.2 Warning systems

Primary State-Operated Warning Systems

System	Purpose	Main Channels	Responsible Authority
Siren-Based Public Warning System	Immediate population alerting for urgent physical danger	Fixed sirens (acoustic signals)	URSZR + Municipal Civil Protection
SI-ALARM Mobile Public Alert System (Cell Broadcast)	Rapid, geotargeted alerts to all mobile phones in affected area	Cell broadcast messages via mobile networks	URSZR (activation) + Mobile operators (transmission)
112 Emergency Communication System	Central reporting and coordination of emergencies	Voice communication, radio networks, digital dispatch systems	ReCO Regional Notification Centres, under URSZR
ARSO Hazard Warning System	Public information about weather, hydrological, air quality, and environmental risks	Online portals, apps, maps, RSS feeds, TV/Radio	ARSO

Source: A.2.4

A.3 Purposes of disaster communication

In Slovenia, disaster communication aims to protect life and health, reduce vulnerability to hazards, support informed decision-making, maintain public stability, and ensure that vulnerable groups receive accessible and actionable guidance. These goals are embedded in the national civil protection framework and implemented through national, regional, and local communication channels.

Purpose	Description	Where It Appears in Policy / Practice
1. Protecting life, health, and property	Communication provides immediate instructions to help individuals avoid danger (e.g., sheltering, evacuation, hazard avoidance).	Central purpose in Zakon o varstvu pred naravnimi in drugimi nesrečami (ZVNDN).
2. Mitigating vulnerability and exposure	Timely warnings reduce the likelihood that people will be in high-risk areas when hazards occur.	Public warning system (sirens + SI-ALARM) and ARSO hazard warnings.
3. Enhancing preparedness and awareness	Communication educates the public about risks before events happen (e.g., flood season preparedness, wildfire risk periods).	URSZR public education programmes; ARSO seasonal risk campaigns.
4. Supporting informed decision-making during emergencies	Clear instructions (e.g., "move to higher ground," "boil water," "avoid travel") enable individuals to respond correctly.	Municipal Civil Protection Headquarters and ReCO operational communication.
5. Protecting vulnerable and at-risk groups	Extra effort is made to reach elderly persons, remote settlements, socially excluded groups, tourists, and non-Slovene speakers.	Volunteer networks, NGOs, and local community-led communication.
6. Maintaining social trust and calm	Consistent and authoritative messaging helps prevent misinformation, panic, or confusion.	Role of RTV Slovenija and coordinated messaging from URSZR.
7. Supporting coordinated multi-agency response	Common communication protocols ensure fire, police, health, and local authorities share the same situational picture.	112 ReCO centers and civil protection command structure.

Source: A.3.1

Spain

A.1 Organisation and governance

When an emergency occurs at local level, the local territorial plan is activated and local resources are used. This is considered a level one emergency situation.

If the emergency escalates and the local level is unable to tackle with the situation, the autonomous community civil protection (CP) plan is activated and the emergency management responsibility is taken over by the community's CP authority, which also provides its own resources. This is a level two emergency situation.

However, if the situation overcomes the capacity of the autonomous community or in case of nuclear emergency or war situation, or if it affects other autonomous communities, the Minister of Interior may declare a national emergency and take over the overall coordination of the activities. This is a level three emergency situation.

Spain operates a decentralized, three-tier governance structure for disaster communication per Ley 17/2015 del Sistema Nacional de Protección Civil (SNPC).

National level: Dirección General de Protección Civil y Emergencias (DGPCE) under Ministry of Interior coordinates via Centro Nacional de Seguimiento y Coordinación de Emergencias (CENEM) (24/7 monitoring). Sets ES-Alert standards and activates for "National Interest" emergencies Plan Estatal General de Emergencias (PLEGEM).

Regional level (17 Autonomous Communities (CC.AA) + 2 cities.): 112 emergency centers are competent authorities who activate ES-Alert, the public alert system integrated into Red de Alerta Nacional de Protección Civil (RAN) for Civil Protection, designed to send immediate messages to mobile phones in areas facing imminent emergencies. It uses Cell Broadcast technology to deliver mass alerts without relying on data networks or phone numbers, ensuring fast and direct notification for 95%+ of events. Each CC.AA. has its own civil protection law coordinating with national standards. Each Territorial Plan shall provide for the establishment of an Operational Coordination Center (CECOP), where the command and coordination of all operations are carried out, and which is equipped with a liaison system with other Coordination Centers.

Local level: Municipalities implement plans, vulnerability mapping, and community relays.

Source: A.1

A.2 Warning systems

Spain employs a multi-layered approach to warning systems, combining state-operated public alert platforms with commercial infrastructure, traditional channels, and community-driven initiatives. These are integrated under the Red de Alerta Nacional (RAN) framework.

State-operated systems:

ES-Alert (RAN-PWS): Primary cell broadcast system delivering geo-targeted alerts to all mobiles in affected areas (no registration needed). Activated by regional 112 centers via CENEM; used for imminent threats (fires, floods, tsunamis). Supports pictograms and vibrations for accessibility.

Level 1 alerts are enabled by default on mobile devices with the following operating system versions or later: iOS 15.6 or later and Android 11 or later. According to Civil Protection, devices running Android version 8 or earlier will not receive the alerts, and in the case of Android 10, the alert will be displayed but without the corresponding title.

Level 2 and 3. These alerts require manual activation by the user in the phone settings.

AlertCops app: Opt-in push notifications for subscribed users, including vulnerable groups.

Sirens and loudspeakers: Localized for industrial risks (Seveso sites) and nuclear plants.

Emergency Alert System (EAS): Mandatory interruptions on TV/radio for national emergencies

Commercial/private systems:

Telecom operators provide mandatory Cell Broadcast infrastructure per EU Directive 2018/1972

AEMET weather app integrates official alerts; private apps (e.g., Windy) relay RAN feeds.

Ad hoc/community systems:

Social media amplification via official accounts (@proteccioncivil, @112espana).

VOST Spain: Volunteer digital teams with formal DGPCE agreements for real-time monitoring, geolocation, and misinformation combat during crises

In febrery 2026 The municipality of Catarroja (in the Comunitat Valenciana) conducted its first full-scale flood emergency drill following the 2024 DANA event, involving approximately 5,000 residents.

The exercise tested the activation of the municipal Red Alert protocol, including multi-channel public warning systems (loudspeakers, mobile alerts, social media, and drones), real-time coordination through the local Emergency Coordination Center (CECOPAL), traffic control and road closures, and monitoring of high-risk areas such as the barranco del Poyo.

A targeted evacuation scenario was also implemented, including a household with a mobility-impaired resident, to assess procedures for vulnerable populations.

The drill was carried out in collaboration with the Universitat Politècnica de València, the Universitat de València, and Universidad de Waseda, and is intended to become an annual exercise to strengthen operational readiness, inter-agency coordination, and community resilience.

Source: A.2

A.3 Purposes of disaster communication

Yes, the purposes are explicitly described in official Spanish legislation and planning documents.

Ley 17/2015, Art. 2 defines disaster communication as serving three core purposes: (1) risk awareness (educating population on threats), (2) immediate alerting (ES-Alert activation during emergencies), and (3) self-protection guidance (behavioral instructions via multi-channel systems). PLEGEM (2020) expands this to include vulnerability mitigation, equitable access for protected groups, and post-emergency recovery support through coordinated information flows.

Directrices Básicas (Real Decreto 407/1992, updated 2023) operationalize these via mandatory risk communication plans at all administrative levels, emphasizing community resilience and culture of self-protection.

Source: A.3.1

Sweden

A.1 Organisation and governance

Disaster communication in Sweden is organised within a decentralised, multi-level civil preparedness system based on the principles of responsibility, proximity and similarity. The actor responsible for a function in normal conditions normally retains that responsibility during a crisis. Myndigheten för civilt försvar (MCF; formerly MSB) has a national coordinating mandate and must support coordination of measures and information to the public and media. Designated preparedness authorities are organised in 12 preparedness sectors. County Administrative Boards coordinate actors and public information regionally, while municipalities have local geographical-area responsibility and must coordinate information to the public during extraordinary events. Regions and sector-specific authorities communicate within their own areas of responsibility. Krisinformation.se, operated by MCF, aggregates verified information from responsible authorities and other actors. (SFS 2008:1002, §§1, 7; SFS 2022:524; SFS 2017:870, §5; SFS 2006:544, Ch. 2 §7; MCF, 2026a; Krisinformation.se, 2025a).

Source: A.1

A.2 Warning systems

Sweden uses a multi-channel warning architecture centred on Viktigt meddelande till allmänheten (VMA). Under the VMA Act, warnings are disseminated through radio and television and to terminal equipment, with outdoor sirens used when requested. Mobile distribution includes location-based SMS and, since 1 July 2026, SE-Alert using cell-broadcast technology; implementation and testing continue during 2026. VMA is also relayed through Krisinformation.se, the Krisinformation app, SR Play and SOS Alarm's 112 app. The outdoor warning system ("Hesa Fredrik") remains an important channel, especially in selected risk areas. SMHI operates official impact-based weather warnings at yellow, orange and red levels. Less urgent official information can be distributed as "myndighetsmeddelande" via local Sveriges Radio P4. Commercial media, telecom operators, local authority channels, social media, information points and volunteer networks provide complementary dissemination. (SFS 2023:407; MCF, 2026d, 2026f; SMHI, 2026; Krisinformation.se, 2026c).

Source: A.2

A.3 Purposes of disaster communication

Yes. The purposes are described across legislation and official guidance rather than in one single statutory definition. The VMA Act gives the clearest immediate purpose: warnings may be issued when the public must be reached immediately to prevent or limit danger to life or health or extensive damage to property or the environment. Broader official guidance treats communication as a means to support protective action, coordination, preparedness and informed decision-making. Krisinformation.se explicitly aims to make verified information easy to find, reduce the spread of incorrect information and strengthen citizens' ability to make well-founded decisions during crises. MCF's risk- and crisis-communication guidance also emphasises timely, coordinated and credible communication as part of managing societal disruptions and strengthening preparedness. (SFS 2023:407, §4; Krisinformation.se, 2025a; MCF, 2026b, 2026c).

Source: A.3

Switzerland

A.1 Organisation and governance

In Switzerland, disaster protection is organized as a multi-level governance system. The organization of disaster and warning communication reflects the federal structure of the country. While overarching bodies on the federal level exist (Federal Office) competences are largely at the canton level (i.e. counties). Following institutions, organizations and procedures play an important role:

The Federal Office for Civil Protection (BABS / FOCP; https://www.babs.admin.ch/de) plays a central coordinating role: it develops risk-based plans, oversees alerting and communication systems, and ensures secure crisis communication channels.

In terms of serious emergencies (e.g., nuclear, dam break), the National Emergency Operations Centre (NAZ, www.naz.ch) is responsible under BABS for threat assessment and coordinating protective measures.

Cantons and municipalities bear most of the on-the-ground leadership in crisis: they run the local incident command, manage partner organizations, and implement alerting plans at regional level. Regional and especially topographic affordances lead to threat scenarios and accordingly different foci and organization. E.g., the urban canton Zurich (https://www.zh.ch/de/sicherheit-justiz/bevoelkerungsschutz.html) compared to the mountain canton Grisons (https://www.gr.ch/DE/themen/schutz/bevoelkerungsschutz).

The civil protection system is structured around five pillars: police, fire, health services, technical services, and civil defense (Zivilschutz), which work in a joint system under local and cantonal leadership.

On the population-warning side, Switzerland uses a multichannel alert strategy: traditional sirens (via the Polyalert/Polycom systems), plus digital channels like the Alertswiss app (https://www.alert.swiss/) and, more recently, cell-broadcast SMS. (https://www.babs.admin.ch/de/multikanalstrategie)

Source: A.1

A.2 Warning systems

Switzerland's disaster communication relies on state-led multi-channel systems, supported by media and commercial channels, plus localized ad hoc mechanisms for specific risks, ensuring broad coverage across population, geography, and risk type.

1. State-operated systems

Nationwide network/system of fixed and mobile sirens, operated by cantons/municipalities. Signals include general alarm, water alarm, and test signals.

Alertswiss app: Official government app providing push notifications, warnings, and behavioral instructions.

Cell broadcast SMS system: Federal mobile alert system for urgent warnings, e.g., floods, nuclear incidents.

National Emergency Operations Centre (NAZ/NEOC): Issues alerts and instructions via radio, TV, and direct channels to authorities.

2. Commercial / media channels

Radio and TV broadcasters: Required to disseminate official warnings

Online news platforms: Swiss media often relay alerts issued by Alertswiss or authorities.

Authorities use their social media channel on large international platforms (e.g., Twitter/X, Facebook, Instagram) a part of their communication strategy.

3. Ad hoc / community-based systems

Local sirens & loudspeakers: Mobile or temporary sirens in areas affected by specific risks (e.g., river floods).

SMS / WhatsApp alerts by local municipalities: Some cantons/municipalities run subscription-based alert lists for residents.

Infrastructure operators: For example, hydroelectric or dam facilities may trigger localized alarms for residents downstream.

Source: A.2

A.3 Purposes of disaster communication

Swiss official documents frame disaster communication as a protective, preventive, and informational function: alerting people, guiding safe behavior, and coordinating public response across federal, cantonal, and local levels. It emphasizes clarity, timeliness, and multi-channel delivery to safeguard the population effectively. The purposes of disaster communication are explicitly described in official Swiss documents, particularly under the Bevölkerungsschutzgesetz (BZG, SR 520.1) and associated regulations and strategies.

Legal & Policy Basis

1. Bevölkerungsschutzgesetz (BZG), Art. 9

Defines the purpose of disaster communication as alerting the population of imminent dangers, providing behavioral instructions, and informing about protective measures. Ensures authorities coordinate communication to prevent harm and enable effective response.

2. Bevölkerungsschutzverordnung (BevSV, SR 520.12)

Details how warnings and alerts should be structured and disseminated, emphasizing timely, understandable, and actionable communication.

3. BABS multi-channel strategy

States that the purpose of disaster communication is to ensure maximum population coverage, redundancy of channels, and clear behavioral guidance during emergencies.

Source: A.3

Türkiye

A.1 Organisation and governance

Disaster communication is led by AFAD under the Ministry of Interior. Strategic risk communication is framed by TARAP, while operational messaging and multi-agency coordination run through TAMP and the 112 Emergency Call Centers. Meteorology issues color coded hazard warnings, and RTÜK steers public interest broadcasting for emergencies. AFAD uses siren alerts, the AFAD mobile app, websites, and official social media, with provincial AFAD directorates and governorates executing at local level. Coordination integrates ministries, local governments, NGOs, and private actors named as solution partners in national and provincial plans.

Source: A.1

A.2 Warning systems

Systems include AFAD's Integrated Siren and Alarm System, standardized siren signals, the AFAD mobile app showing assembly points and enabling emergency calls, MeteoUyarı color coded alerts, 112 call centers, and public service broadcasting. Official websites and verified social media accounts amplify messages.

Source: A.2

A.3 Purposes of disaster communication

Official plans and guidance describe aims of disaster communication, including preparedness, early warning, and public safety. TARAP sets national risk reduction objectives. TAMP and AFAD guidance explain sirens, assembly areas, and app based instructions for citizens.

Source: A.3

Ukraine

A.1 Organisation and governance

In Ukraine, disaster communication and governance are structured through centralized authorities, and decentralized local actors.

State Emergency Service of Ukraine (DSNS) creates the national governance framework. It operates under the Ministry of Internal Affairs, and it is a central agency responsible for emergency preparedness, response, and public communication – including early warning alerts and mobilizing first responders. At the same time, wartime governance has increasingly centralized executive authority, with presidential decrees guiding emergency actions.

Source: A.1

A.2 Warning systems

There are several warning systems that are operating at the same time. First, a nationwide network of air-raid sirens, managed by local authorities and tied directly to Air Force radar systems. When threats (missiles, aircraft, drones) are detected, alerts are triggered via secure digital channels to siren operators, who activate the sirens manually at a local level. Second, geo-targeted mass messaging through Cell Broadcast and location-based SMS, compliant with EU directives dating from 2022 (EECC), enabling authorities to send alerts to active mobile devices within specific regions quickly and anonymously. However, this system is kept for the major threats such as nuclear one. It is not used for the air alerts. Third, there are government-linked and commercial apps identifying threats. Finally, local SMM channels serve as real-time alert networks, especially in frontline towns.

Source: A.2

A.3 Purposes of disaster communication

The Civil Protection Code of Ukraine establishes clear, legal obligation for the state to notify the public in advance and during emergencies, ensure trustworthy information flow, and communicate response actions.

Source: A.3.1

United Kingdom

A.1 Organisation and governance

Disaster communication and warning systems in the United Kingdom are organised under the Civil Contingencies Act 2004, which establishes the legal framework for emergency preparedness, response and public communication. The Act requires key organisations, known as Category 1 responders (such as emergency services, local authorities and health bodies), to maintain arrangements to warn, inform and advise the public during emergencies.

At the national level, strategic coordination is led by the UK Government through COBR (Cabinet Office Briefing Rooms), which brings together relevant departments and agencies during major incidents. The Government Communication Service (GCS) coordinates crisis communication strategy across government, while Lead Government Departments take responsibility for specific types of emergencies.

At the local level, Local Resilience Forums (LRFs) coordinate multi-agency communication and preparedness within defined areas. Public warnings are delivered through multiple channels, including the Emergency Alerts mobile phone system, broadcast media and official online platforms, ensuring timely and consistent messaging across national and local levels.

Source: A.1

A.2 Warning systems

The UK uses a combination of state, commercial, and ad hoc warning systems. The national Emergency Alerts system sends location-based messages to mobile phones for life-threatening emergencies, such as flooding or fires. Traditional state systems include broadcast warnings via television and radio, managed in coordination with emergency services. Local authorities and Local Resilience Forums may use community alert networks, sirens, and social media to provide timely information. Commercial systems include private weather services, transport apps, and utility notifications that inform the public about disruptions or risks. Ad hoc methods, such as email lists, SMS alerts, and messaging apps, are also employed by local councils, hospitals, or voluntary organizations to reach specific populations. Public service media, including the BBC, amplify official messages, ensuring widespread coverage and reinforcing other warning channels.

Source: A.2

A.3 Purposes of disaster communication

Yes, the purposes of disaster communication are described in official UK documents, primarily under the Civil Contingencies Act 2004 and supporting guidance such as “Emergency Preparedness” and “Emergency Response and Recovery.” These documents state that disaster communication aims to warn, inform, and advise the public about imminent or ongoing emergencies, helping people take appropriate protective actions. Communication also supports coordination among responders, ensures consistent messaging across agencies, and maintains public confidence. Additional objectives include providing timely updates, clarifying risks, reducing confusion, and supporting recovery efforts. Official guidelines emphasize that communication should be accurate, clear, timely, and accessible to all populations, including vulnerable groups. By defining these purposes, UK frameworks ensure that disaster communication is not only a tool for alerting the public but also an essential component of effective emergency management, decision-making, and resilience-building.

Source: A.3

Section 2 - Comparative analysis

The country descriptions show both similarities and important differences in how disaster communication and warning systems are organized across Europe. The strongest similarities concern the basic purposes of warning communication and the technologies used to reach the public. The largest differences are found in governance: which authorities are responsible, at what administrative level decisions are made, and how national, regional and local actors are coordinated.

Different governance structures

Disaster communication is generally not organized as a separate policy area. Instead, it is part of wider systems for civil protection, emergency management or crisis management. In most countries, several administrative levels are involved, but the balance between these levels varies considerably.

One clear group consists of countries with federal or strongly decentralized political systems. Austria, Germany, Switzerland and Spain are examples where regional authorities have significant responsibility for disaster management and warning communication. In Austria, a large part of the operational responsibility lies with the Länder, while the federal level provides coordination through the State Crisis and Disaster Management system. Switzerland follows a similar logic. Cantons and municipalities have major operational responsibilities, while federal bodies coordinate national warning systems and provide common infrastructure.

Spain shows another example of this decentralized logic. Local authorities manage smaller emergencies, autonomous communities take over when local capacity is exceeded, and the national level becomes responsible when an emergency reaches national importance or crosses regional boundaries. The details differ between these countries, but the general pattern is similar: warning communication is closely connected to the wider political and administrative structure of the country.

Other countries have a more clearly coordinated national structure. Croatia, for example, has a multi-level system but with strong national coordination through the Ministry of the Interior and the Civil Protection Directorate. National, county and local civil protection headquarters operate within this structure. Bulgaria also has a strong national coordination model, where the Ministry of Interior and the Fire Safety and Civil Protection Directorate have central responsibilities for warning and public information.

At the same time, the distinction between centralized and decentralized systems should not be seen as too clear-cut. Estonia, for example, has strong national coordination and a highly integrated national warning system, but crisis management is also organized through national, regional and municipal crisis committees. Sweden also shows a similar mixed pattern. Responsibility is decentralized and follows the principle that actors normally retain their responsibilities during a crisis, while MCF has a national coordinating role and County Administrative Boards and municipalities coordinate communication at regional and local levels. In other words, most countries combine central coordination with responsibility at lower administrative levels. The main difference is how this balance is organized.

Some of the clearest contrasts concern countries where coordination is more fragmented. Bosnia and Herzegovina is an example. Responsibilities are divided between state, entity, cantonal and local levels, and the protocol points to overlapping responsibilities, inconsistent communication and weak coordination between these levels. The national 112 system has also been legally established but is still described as not operational. This differs markedly from countries where the institutional chain from warning authority to dissemination is more clearly integrated.

Similar warning technologies

If governance structures differ considerably, warning technologies are more similar. However, this convergence is not complete. Belgium, for example, uses location-based SMS rather than Cell Broadcast in BE-Alert, reflecting technological choices made when the system was introduced. Across the countries in the report, however, most countries use several communication channels rather than relying on a single warning system. Sirens, mobile alerts, radio and television, government

websites, apps and social media are commonly used together. Private actors, especially telecommunications companies and broadcasters, normally support dissemination, while public authorities remain responsible for official warnings.

To some extent, this multi-channel approach creates redundancy. A siren can alert people that something has happened, while radio, television, mobile messages or websites can provide more detailed information and instructions. Mobile warning systems have become particularly important because they allow authorities to send geographically targeted warnings directly to people in affected areas.

The Netherlands illustrates this combination well. NL-Alert is used together with outdoor sirens and public broadcasting, while Safety Regions and municipalities also use websites, social media and other local channels. Spain similarly combines ES-Alert with traditional warning channels, apps, public media and community-based communication. Croatia combines Cell Broadcast, sirens, broadcasting and local communication methods within its national civil protection system. Sweden follows the same pattern: the VMA system combines radio and television, mobile warnings, outdoor sirens, official websites and apps, while the introduction of SE-Alert adds Cell Broadcast to the existing warning infrastructure.

Warning technology is becoming increasingly similar across countries, even when political and administrative systems remain different. National systems such as AT-Alert, EE-ALARM, NL-Alert, ES-Alert and other mobile warning systems differ in organization and name, but they are based on similar ideas: geographically targeted warnings, rapid dissemination and the use of several channels at the same time.

This is one of the clearest similarities between the countries. Different governance traditions increasingly make use of similar technologies. Political and administrative history still influences who is allowed to issue a warning and how authorities coordinate their work, but the technical infrastructure is becoming more similar.

Similar purposes, but differences in inclusion

There is also substantial agreement about what disaster communication is supposed to achieve. Where the purposes are explicitly described, the main goals are to protect life and health, inform people about risks, provide instructions for protective action and strengthen preparedness. The Netherlands, for example, describes disaster communication as both protective and preventive, including timely information, behavioral guidance and coordinated messaging. Switzerland similarly emphasizes warning, behavioral instructions and information about protective measures. Spain refers to risk awareness, immediate warning and self-protection guidance.

The greater differences concern how these general purposes are translated into communication for different groups in the population. Some countries provide relatively detailed guidance on multilingual communication, people with disabilities and other groups that may be difficult to reach. The Netherlands, for example, has specific guidance for elderly people, children, people with disabilities and non-Dutch speakers. Estonia provides another example. Its warning system includes rules on language, and warnings have been distributed in Estonian, Russian and English.

In other countries, these issues are less clearly developed in the available documentation. Lithuania, for example, identifies language barriers and digital exclusion as challenges, and the protocol states that warning messages are not systematically differentiated for specific population groups. Bosnia and Herzegovina provides an even stronger contrast, since the protocol states that the purposes of disaster communication are not explicitly described in official documents.

This suggests that countries are relatively similar when describing the general purpose of warning communication, but less similar when it comes to how these goals are translated into detailed rules and practices for different groups.

Different warning cultures?

The comparison gives some support to the idea that different warning cultures exist, but they do not appear to follow simple geographical divisions. The material does not suggest a clear Northern, Southern, Eastern or Western European model. Instead, the strongest patterns seem to be connected to political and administrative traditions.

Italy provides an interesting example of how “culture” is also used within national policy itself. Italian documents explicitly refer to fostering a “culture of civil protection”, linking risk awareness and public information to self-protection, training and

community engagement. In this sense, warning culture can also refer to how authorities view the role of citizens in preparedness, rather than only to how warning systems are institutionally organized.

Federal and decentralized countries tend to distribute warning responsibilities across several political levels. Countries with more centralized civil protection systems tend to place a stronger coordinating role at the national level. These differences can be understood as different traditions of organizing warning communication rather than as differences in the basic purpose of warnings.

It may therefore be more useful to speak of warning governance traditions than of clearly defined regional warning cultures. Austria and Switzerland share important organizational characteristics because of their federal structures, while Spain shows similar decentralizing features despite a different political history. Sweden also illustrates why simple geographical categories are difficult: it combines decentralized responsibility with national coordination and a common national warning infrastructure. At the same time, Estonia and the Netherlands have different administrative systems but show similarities in their use of integrated, multi-channel and digitally based warning systems.

The overall picture is therefore that countries organize warning communication differently, but increasingly use similar technologies and pursue broadly similar goals.

A final point is important. The comparison is mainly based on laws, official documents, guidelines and descriptions of warning systems. These sources tell us how disaster communication is supposed to work, but not necessarily how it works in an actual crisis. A legally established warning system may not always function as intended, and detailed guidelines do not automatically mean that warnings are timely, understood or acted upon. Conversely, informal and local communication practices may be important even when they are not well documented. Ukraine provides a particularly clear example of this problem. The formal civil protection structure remains important, but wartime conditions have changed both governance and the everyday use of warning channels, with air-raid sirens, apps and local digital networks becoming part of a continuously operating warning environment. The material therefore provides a good basis for comparing formal structures and procedures, but conclusions about the actual effectiveness of warning communication require further analysis of practices and real crisis situations.