

| Term | Definition | Abbreviation | Synonym | Reference (the first defining the term...) | EWS Element |
|----------------------|---|--------------|------------------------------|--|---|
| Accuracy | Degree of conformity of a measure to a standard or true value; in other words, how close a predicted or measured value is to the true value. | | | NOAA, 2022 | |
| Advisory | Highlights special weather conditions that are less serious than a warning. They are for events that may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property. | ADVY | | NOAA, 2022 | |
| Advisory | All stages or levels considered by the LEWSs, and the related messages. | | | Guzzetti et al., 2020 | Warning dissemination and communication |
| Alarm level | A loud noise or a signal that warns people of danger or of a problem. | | | Oxford Learner's Dictionary | |
| Alarm level | Pre-designated level of a device system, over which the device provides an audio/visual signal to call intensive attention for the users. When used in LEWS, alarm levels are set as a threshold (cutoff) in the device system, generally in local LEWS. Some countries use it interchangeably with such terms as alert level. | | | Madhusudhan et al., 2018 | |
| Alarm system | Is a system that detects process parameters of ongoing hazard events to initiate an alarm automatically, e.g., in the form of red flashing lights accompanied by sirens. | | | Stähli et al., 2015 | Detection, monitoring, analysis and forecasting |
| Alert | A warning of danger or of a problem. | | Warning | Oxford Learner's Dictionary | Warning dissemination and communication |
| Alert parameters | The parameters monitored used in the adopted warning model. | | | Proposed by LandAware from Pecoraro et al., 2019 | |
| Attention level | Attention (to something/somebody) the act of listening to, looking at or thinking about something/somebody carefully; interest that people show in somebody/something. | | | Oxford Learner's Dictionary | |
| Attention level | A level of due portion of psychological focus related to warning and evacuation activities in time of heightened landslide risk and/or imminent occurrences. Ideally, LEWS are designed and adjusted, if possible, in a stage-wise manner so that it may correspond to the protocol of the user community. The level is called binary "on/off" when there is only two stages. In information age, attention is the single most important and limited resource. LEWS is a system to claim a life-saving attention when landslide(s) are imminent. | | | Madhusudhan et al., 2018 | |
| Casualties | The sum of the fatalities and the injured people due to a landslide. | | | Salvati et al., 2010; Rossi et al., 2019 | |
| Cloudburst | Rain storm of great intensity usually over a small area for a short duration. | | Heavy rainshower | NDMA, 2009 | Disaster risk knowledge |
| Components of EWS | The key elements that constitute a EWS. Effective "end to end" and "people centred" early warning systems may include four interrelated key elements: (1) disaster risk knowledge based on the systematic collection of data and disaster risk assessments; (2) detection, monitoring, analysis and forecasting of the hazards and possible consequences; (3) dissemination and communication, by an official source, of authoritative, timely, accurate and actionable warnings and associated information on likelihood and impact; and (4) preparedness at all levels to respond to the warnings received. | | key elements of EWS | Proposed by LandAware from UNISDR, 2006 and UNGA, 2016 | Warning dissemination and communication |
| Co-seismic landslide | A landslide triggered or induced by an earthquake. | | Earthquake-induced landslide | NDMA, 2009 | Disaster risk knowledge |

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| Covered area (local scale LEWS) | The area under surveillance that can range from less than 0.1 km ² for systems dealing with single landslides to more than 1km ² for systems monitoring large destructive phenomena or several landslides on a slope. | | | Pecoraro et al., 2019 | |
| Creep | Creep is deformation that varies with time, occurring at constant, largely plastic stress (i.e., most of the deformation is not recoverable after an initial elastic, recoverable strain). | | | Intrieri et al., 2019 | |
| Daily hazard assessment | The every day action of evaluating the potential of landslide activity at a specific slope or over an area and at a specific period of the time. | | | Proposed by LandAware | Disaster risk knowledge |
| Debris avalanche | Very rapid to extremely rapid shallow flow of partially or fully saturated debris on a steep slope, without confinement in an established channel. Occurs at all scale. | | | Hungr et al., 2014 | |
| Debris flood | Very rapid flow of water, heavily charged with debris, in a steep channel. Peak discharge comparable to that of a water flood. | | | Hungr et al., 2014 | |
| Debris flow | Very rapid to extremely rapid surging flow of saturated debris that move downslope confined in a gully or in a steep channel. Strong entrainment of material and water from the flow path. | | | Hungr et al., 2014 | |
| Debris slide | Sliding of a mass of granular material on a shallow, planar surface parallel with the ground. Usually, the sliding mass is a veneer of colluvium, weathered soil, or pyroclastic deposits sliding over a stronger substrate. Many debris slides become flow-like after moving a short distance and transform into extremely rapid debris avalanches. | | Gravel/sand/debris slide | Hungr et al., 2014 | |
| Designed (LEWS) | A system that is planned and designed, but for which a prototype does not exist. | | | Guzzetti et al., 2020 | |
| Disaster | A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts. | | | UNGA, 2016 | Disaster risk knowledge |
| Disaster | A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. | | | UNISDR, 2009 | Disaster risk knowledge |
| Disaster | A catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, and degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area. | | | NDMA, 2009 | Disaster risk knowledge |
| Disaster management | The organization, planning and application of measures preparing for, responding to and recovering from disasters. | | | UNGA, 2016 | Disaster risk knowledge |

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| Disaster management | A continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for prevention of danger or threat of any disaster; mitigation or reduction of risk of any disaster or its severity or consequences; capacity building; preparedness to deal with any disaster; prompt response to any threatening disaster situation or disaster; assessing the severity or magnitude of effects of any disaster; evacuation, rescue and relief; and rehabilitation and reconstruction. | | | NDMA, 2009 | Disaster risk knowledge |
| Disaster risk | The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity. | | | UNGA, 2016 | Disaster risk knowledge |
| Disaster risk | The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period. | | | UNISDR, 2009 | Disaster risk knowledge |
| Disaster risk management | <small>The application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.</small> | DRM | | UNGA, 2016 | Disaster risk knowledge |
| Disaster risk management | The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster. | | | UNISDR, 2009 | Disaster risk knowledge |
| Disaster risk reduction | The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. | DRR | | UNISDR, 2009 | Disaster risk knowledge |
| Disaster risk reduction plan | A document prepared by an authority, sector, organization or enterprise that sets out goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. | | | UNISDR, 2009 | Disaster risk knowledge |
| Dismissed (LEWS) | A system that was abandoned or dismantled, irrespective of the reasons for abandoning or dismantling the system. | | | Guzzetti et al., 2020 | Warning dissemination and communication |
| Early | Occurring before the usual or expected time | | | Dictionary.com | Warning dissemination and communication |
| Early warning | A thing that tells you in advance that something serious or dangerous is going to happen. | | | Oxford Learner's English Dictionary; Guzzetti et al., 2020 | Warning dissemination and communication |
| Early warning system | A device, system or set of capacities that generates and disseminates timely and meaningful information to enable individuals, communities, and organizations threatened by a hazard to act timely and appropriately to avoid or to reduce the impact of the threat. | | | Seibold, 2003; Zschau and Küppers, 2003; UNISDR, 2006; Di Biagio and Kjekstad, 2007; Huggel et al., 2010; Medina-Cetina and Nadim, 2008; Alfieri et al., 2012; Guzzetti et al., 2020 | Warning dissemination and communication |
| Early warning system | A condition, system, or series of procedures indicating a potential development or impending problem. (in military) | | | Oxford English Dictionary; Guzzetti et al., 2020 | Warning dissemination and communication |
| Early warning system | Any series of steps established to spot potential problems. | | | Dictionary.com; Guzzetti et al., 2020 | Warning dissemination and communication |

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| Early warning system | An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events. | | | UNGA, 2016 | Warning dissemination and communication |
| Early warning system | The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss. | | | UNISDR, 2009 | Warning dissemination and communication |
| Earthquake-induced landslide | Landslide triggered by seismic activity (i.e. due to ground shaking alone, liquefaction of susceptible sediments, or shaking-caused dilation of soil materials, which allows rapid infiltration of water). | | Co-seismic landslide | Proposed by LandAware | Disaster risk knowledge |
| Element at risk | The population, properties, economic activities, including public services, etc., that are at risk in a given area. | | | NDMA, 2009 | Disaster risk knowledge |
| Elements in EWS | The components of a Early warning system. | | | Proposed by LandAware from UNISDR (2006) | Warning dissemination and communication |
| Emergency management | The organization and management of resources and responsibilities for addressing all aspects of emergencies, in particular preparedness, response and initial recovery steps. | | | UNISDR, 2009 | Disaster risk knowledge |
| Emergency services | The set of specialized agencies that have specific responsibilities and objectives in serving and protecting people and property in emergency situations. | | | UNISDR, 2009 | Detection, monitoring, analysis and forecasting |
| Empirical thresholds | Thresholds that are defined heuristically (e.g., visually). | | | Guzzetti et al., 2020 | Detection, monitoring, analysis |
| Ensemble | A collection of numerical model results that show slightly different possible outcomes. | | | NOAA, 2022 | Disaster risk knowledge |
| Evaluation of LEWS performance | The action of evaluating how LEWS is functioning. The evaluation can be conducted daily, weekly or monthly. | | | Proposed by LandAware | Preparedness and response capabilities |
| Experimental (LEWS) | When a working prototype exists and is undergoing testing and preliminary evaluation. | | | Guzzetti et al., 2020 | Disaster risk knowledge |
| Exposure | People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses. | | | UNISDR, 2009 | Disaster risk knowledge |
| Extensive risk | The widespread risk associated with the exposure of dispersed populations to repeated or persistent hazard conditions 16 of low or moderate intensity, often of a highly localized nature, which can lead to debilitating cumulative disaster impacts. | | | UNISDR, 2009 | Disaster risk knowledge |
| Fatal landslide | A landslide that caused fatalities and casualties. | | Fatal event | Proposed by LandAware from Rossi et al., 2019 | |
| Fatalities | The sum of the deaths and the missing persons due to a landslide. | | | Salvati et al., 2010; Rossi et al., 2019 | |
| Forecast | Definite statement or statistical estimate of the likely occurrence of a future event or conditions for a specific area. | | | UNISDR, 2009 | Detection, monitoring, analysis and forecasting |
| Forecast | A statement of prediction. | | | NOAA, 2022 | Detection, monitoring, analysis and forecasting |
| Forecast | An estimate of the future state of a natural system obtained with a numerical model. | | | Ramage, 1993; Guzzetti et al., 2020 | Detection, monitoring, analysis and forecasting |

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| Forecasting | The job or activity of judging what is likely to happen in the future, based on the information you have now. | | | Cambridge Dictionary | Detection, monitoring, analysis and forecasting |
| Forecasting systems | Forecasting systems predict the level of danger of a RMM process, typically at the regional scale and at regular intervals. In contrast to warning systems, the data interpretation is not based on a threshold but is conducted on a regular basis, e.g., daily. Experts analyze sensor data and consult models to forecast the regional danger levels, which are communicated widely in a bulletin. | | | Stähli et al., 2015 | Detection, monitoring, analysis and forecasting |
| Geographical LEWS | LEWSs covering a geographical area and we distinguish between regional, national, and global LEWSs. | | Territorial | Guzzetti et al., 2020 | Detection, monitoring, analysis and forecasting |
| Geo-induced landslides | Landslides caused by either earthquakes, volcanic eruption or other geological conditions. | | | Proposed by LandAware | |
| Geological hazard | Geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. | | | UNISDR, 2009 | Disaster risk knowledge |
| Global LEWS | LEWSs covering the larger portion of the globe. | | | Guzzetti et al., 2020 | Warning dissemination and communication |
| Hazard | A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. | | | UNISDR, 2009 | Disaster risk knowledge |
| Hazard | A threatening event or the probability of occurrence of a potentially damaging phenomenon (e.g., an earthquake or a large flood) within a given time period and area. | | | NDMA, 2009 | Disaster risk knowledge |
| Hazard cascade | The interactions of hazards that can occur successively to form networks of hazard interactions (referred to as hazard cascades or chains). | | | Gill and Malamud, 2016 | Disaster risk knowledge |
| Heavy rainshowers | Short duration, and mostly intense rainfall, across localized areas, especially on summer produced by convective clouds. | | Cloudburst | Devoli et al., 2021 | Disaster risk knowledge |
| Hindcast | A forecast in the past, often used for testing a model using past data and information, used for evaluation and verification. | | | Guzzetti et al., 2020 | Detection, monitoring, analysis and forecasting |
| Hydrometeorological hazard | Process or phenomenon of atmospheric, hydrological or oceanographic nature that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. | | | UNISDR, 2009 | Disaster risk knowledge |
| Impact-based forecasts and warnings | Forecasts and warnings designed to express the expected impacts as a result of the expected weather. (considering hazard and vulnerability only) | | | WMO, 2015 | Detection, monitoring, analysis and forecasting |
| Impact-based forecasts and warnings | Forecasts and warnings designed to provide detailed information down to the individual, activity or community level. (considering hazard, vulnerability and exposure) | | | WMO, 2015 | Detection, monitoring, analysis and forecasting |
| Individual risk | Risk posed by a hazard to any identified individual. | | | Fell and Hartford, 1997; Guzzetti et al., 2005; Salvati et al., 2010 | Disaster risk knowledge |
| Individual-risk criteria | Criteria expressed using mortality (or death) rates, which are a measure of the number of fatalities in a population, scaled to the size of the population, per unit time. | | | Fell and Hartford, 1997; Guzzetti et al., 2005; Salvati et al., 2010 | Disaster risk knowledge |

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| Lahar | Flows that originate on the slopes of volcanoes and are a type of debris flow. Lahars are also known as volcanic mudflows. A lahar mobilizes the loose accumulations of tephra (the airborne solids erupted from the volcano) and related debris. | | | Highland and Bobrowsky, 2008 | |
| Landslide | The downslope movement of soil, rock, and organic materials under the effects of gravity and also the landform that results from such movement. | | | Highland and Bobrowsky, 2008 | Disaster risk knowledge |
| Landslide | A term that encompass all types of mass movements including e.g., rock falls and topples, debris flows, soil slips, earthflows, rockslides, rock avalanches, shallow and deep-seated slides, and complex and compound slope failures. | | | Cruden and Varnes, 1996; Hungr et al., 2014; Rossi et al., 2019 | |
| Landslide advisory | A (landslide) advisory is a general statement about the potential of landslide activity in a given region relative to developing rainfall predictions. An advisory may include general statements about rainfall conditions that can lead to debris-flow activity, and list precautions to be taken in the event of heavy rainfall. | | Warning message | USGS, 2022 | Warning dissemination and communication |
| Landslide dam | When landslides occur on the slopes of a river valley, the sliding mass may reach the bottom of the valley and cause partial or complete blockage of the river channel. This accumulated mass of landslide debris resulting in blockage of a river is commonly termed as <u>landslide dam</u> . | | | NDMA, 2009 | Disaster risk knowledge |
| Landslide data | All facts and information about landslide events collected together for reference or analysis. | | | Proposed by LandAware | Disaster risk knowledge |
| Landslide early warning system | An EWS devoted to landslides. | LEWS | | Di Biagio and Kjekstad, 2007; Medina-Cetina and Nadim, 2008; Huggel et al., 2010; Stähli et al., 2015; Calvello, 2017; Greco and Pagano 2017; Piciullo et al., 2018; Guzzetti et al., 2020 | Warning dissemination and communication |
| Landslide event | A landslide that has occurred at a specific location and has left discernable traces in the area (in the slope or the terrain). | | | Proposed by LandAware | |
| Landslide event | A “landslide event” consists of one or more landslides caused by the same trigger (e.g., a rainstorm, a prolonged rainfall period). | | | Rossi et al., 2019 | |
| Landslide failure | Failure (or rupture) is defined as a complete paroxysmal collapse of the material | | | Intrieri et al., 2019 | |
| Landslide fatalities | They are individuals who lost their lives due to, or as a consequence of a landslide, and who would be – or would have been – alive without the landslide event. | | | Rossi et al., 2019 | |
| Landslide forecasting | Landslide forecasting consists in the prediction of a slope failure in spatial and/or temporal terms. | | | Intrieri et al., 2019 | |
| Landslide forecasting and warning service | A component of the LEWS supplying the public with daily landslide hazard assessments and warning messages. Is the office responsible for issuing advisories, warnings, statements, and short term forecasts for warning area. The service is designed to predict landslides mainly at national/regional scale, in particular over a region or at site-specific slope. The service uses specialists to analyse meteorological and hydrogeological models and forecasts, sensor data, and predefined national and regional or local thresholds. Finally, the danger level is widely communicated through a bulletin. | | | Proposed by LandAware | Detection, monitoring, analysis and forecasting |

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| Landslide hazard map | Map of spatial and temporal extent of landslide hazard. It indicates those areas that are, or could be, affected by landslides, assessing the probability of such landslides occurring within a specific period of time. | | | NDMA, 2009 | Disaster risk knowledge |
| Landslide inventory | Map recording the location and, where known, the date of occurrence and the types of mass movements that have left discernable traces in an area. | | | Guzzetti et al., 2012 (and reference therein) | Disaster risk knowledge |
| Landslide inventory | Documentation of all the known landslide incidences including stabilised, dormant, reactivated, and most recent slides. | | | NDMA, 2009 | Disaster risk knowledge |
| Landslide inventory map | Inventories identify areas that appear to have failed by landslide processes, including debris flows and cut-and-fill failures. | | | Highland and Bobrowsky, 2008 | Disaster risk knowledge |
| Landslide model | The functional, empirical or physical relation linking measurements (e.g., rainfall) or variables (e.g., the water table depth in the slope) to the (possible) occurrence or lack of occurrence of landslides. Thus, a rainfall threshold is a type of landslide model. | | “landslide model”, “forecast model”, “process model”, and “landslide forecast model” | Calvello, 2017; Guzzetti et al., 2020 | Disaster risk knowledge |
| Landslide model | A functional relationship between weather characteristics and landslide events considering monitoring data and the geological, geomorphological and geotechnical features of the area of interest. | | | Pecoraro et al., 2019 | |
| Landslide risk map | A map that integrates landslide hazard, landslide vulnerability and quantification of elements at risk. | | | NDMA, 2009 | Disaster risk knowledge |
| Landslide susceptibility map | A map that ranks slope stability of an area. It shows locations where landslides may occur in future (without a definite time frame). These maps go beyond an inventory map and depict areas that have the potential for landsliding. | | | NDMA, 2009 | Disaster risk knowledge |
| Landslide threshold | The lower bound of known hydrological conditions (e.g., rainfall, infiltration, soil moisture) that resulted in landslides. | | | Reichenbach et al., 1998 | |
| Landslide warning | (A landslide) warning indicate that landslide activity is presently occurring and extreme caution should be taken. | | | USGS, 2022 | Warning dissemination and communication |
| Landslide watch | A (landslide) watch means that landslide-activity will be possible, but is not imminent. People in, or planning to travel through, a watch area should know landslide preparedness and stay informed about developing weather patterns. | | | USGS, 2022 | |
| Lead time | The interval between the time a warning is issued and the beginning of the forecasted landslide event. | | | Pecoraro et al., 2019 | Detection, monitoring, analysis and forecasting |
| Local LEWS | LEWS that address single landslides at slope scale. | Lo-LEWSs | site specific LEWS | Piciullo et al., 2018 | Warning dissemination and communication |
| Magnitude of fatal landslide event | It is the measure of the landslide consequences, and it is given by the number of the landslide fatalities. | | | Rossi et al., 2019 | |
| Man-made landslide | Landslide that is directly triggered or partially aggravated by anthropic activities (i.e. disturbing or changing drainage patterns, destabilizing slopes, removing vegetation, oversteepening of slopes by undercutting the bottom and loading the top of a slope to exceed the bearing strength of the soil or other component material; mining activities; land use changes; irrigation, lawn watering, draining of reservoirs (or creating them), leaking pipes, and improper excavating or grading on slopes). | | Human-induced landslides; Human-caused landslides; Anthropogenic landslides | Proposed by LandAware | Disaster risk knowledge |

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| Mass movement | A general term to indicate the displacement of surface materials down-slope under the force of gravity. | | Slope movement, mass wasting | Smith, 2013 | Disaster risk knowledge |
| Meteo-induced landslides | Landslides caused by either rainfall episode or snowmelt episodes or combination of both. | | Weather-induced landslides | Proposed by LandAware | |
| Mitigation | Measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation. | | | NDMA, 2009 | Disaster risk knowledge |
| Monitored parameters | Indicators or factors related to the slope or landslide of interest that can be quantified and observed with time. | | | Baron et al., 2012; Pecoraro et al., 2019 | |
| Mosaic of thresholds | Threshold system in which the area is partitioned in smaller (and possibly geomorphologically, climatically homogeneous) sub-areas, each with a specific threshold equation (or set of thresholds) calibrated independently. | | | Proposed by LandAware from Segoni et al., 2014 | |
| Multi-hazard risk assessment | Approaches to assessing hazard potential integrating all aspects of hazard interactions together with vulnerability and exposure. | | | Gill and Malamud, 2016 | Disaster risk knowledge |
| National LEWS | LEWS covers an entire nation or a large part of a nation or state. | | | Guzzetti et al., 2020 | |
| Natural hazard | Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. | | | UNISDR, 2009 | Disaster risk knowledge |
| Non-structural measure | Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education. | | | UNISDR, 2009 | Preparedness and response capabilities |
| Non-structural measures | Non-engineered measures to reduce or avoid possible impacts of hazards which include education, training, capacity development, public awareness, communication, etc. | | | NDMA, 2009 | Preparedness and response capabilities |
| Nowcast | It is a short-term forecast, typically up to six hours | | | Guzzetti et al., 2020 | Detection, monitoring, analysis and forecasting |
| Nowcast | A short-term weather forecast, generally out to six hours or less. This is also called a Short Term Forecast. | | Short Term Forecast | NOAA, 2022 | Detection, monitoring, analysis and forecasting |
| Operational (LEWS) | A system that is working regularly according to specifications, and it is endorsed or certified by an organization. | | | Guzzetti et al., 2020 | Preparedness and response capabilities |
| Ordinary level | Not unusual or different in any way. | | | Oxford Learner's Dictionary | |
| Ordinary level | A state of landslide(s) is regarded and announced as ordinary and/or normal when intensive attention is not needed. During ordinary level, observed hydrological indices stay within a seasonal variation. Reliable LEWS is to be designed to limit the possibility of abrupt unalarmed occurrence during the state of ordinary level upon agreement, to avoid incidents of "failure of alarm (FOA)". The level cannot, however, be lowered with the opposite conflict of | | | Madhusudhan et al., 2018 | |
| Performance of a LEWS | The action or process of executing a task or function (which in the case of LEWS is the ability of the service to predict the occurrence of landslides in a certain area and in a given time). | | | Proposed by LandAware | Detection, monitoring, analysis and forecasting |
| Performance of a LEWS | The system capability to timely detect a landslide event. | | | Pecoraro et al., 2019 | |

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| Physically-based approaches thresholds | The approach that denotes the methodologies for deriving landslide early warning rationales based on analytical explanations of the physical mechanism of landslide phenomena. Various models have been proposed by incorporating hydrological and geomechanical theories to explain the physics of landslide-triggering processes. | | | Park et al., 2019 | Disaster risk knowledge |
| Practitioner | The institution actively engaged in the running daily operation of the forecasting and warning services. | | | Proposed by LandAware | |
| Prediction | An estimate of an event happening in the future, the present or the past. | | | Guzzetti et al., 2020 | Disaster risk knowledge |
| Pre-operational (LEWS) | A system that is working according to specifications but not necessarily regularly, that is undergoing testing, and it is not yet endorsed or certified by any organization. | | | Guzzetti et al., 2020 | Preparedness and response capabilities |
| Preparedness | The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters. Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, the stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information, and associated training and field exercises. | | | UNGA, 2016 | Preparedness and response capabilities |
| Preparedness | The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions. | | | UNISDR, 2009 | Preparedness and response capabilities |
| Preparedness | The state of readiness to deal with a threatening disaster situation or disaster and the effects thereof. | | | NDMA, 2009 | Preparedness and response capabilities |
| Prevention | The outright avoidance of adverse impacts of hazards and related disasters. | | | UNISDR, 2009 | Preparedness and response capabilities |
| Public awareness | The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken individually and collectively to reduce exposure and vulnerability to hazards. | | | UNISDR, 2009 | Warning dissemination and communication |
| Rainfall- and snowmelt-induced landslides | Landslides that are caused by rainfall and/or snowmelt episodes. | | Meteo-induced landslides | Krøgli et al., 2018 | Disaster risk knowledge |
| Rainfall threshold | The rainfall conditions that when reached or exceeded, are likely to trigger landslides. | | | Reichenbach et al., 1998; Guzzetti et al., 2007; Segoni et al., 2018; Guzzetti et al., 2020 | Detection, monitoring, analysis and forecasting |
| Rainfall-induced landslides | Landslides that are caused by rainfall. | | Meteo-induced landslides | Proposed by LandAware | Disaster risk knowledge |
| Rapid mass movements | A general term to indicate all mass movements characterized by high, very high and extremely high velocity (e.g. snow avalanches, debris flows, debris avalanches, rock falls and rock avalanches). | RMM | | Proposed by LandAware | Disaster risk knowledge |
| Recovery | The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors. | | | UNISDR, 2009 | Preparedness and response capabilities |
| Regional LEWS | LEWS covers a large municipality, a metropolitan area, an administrative district, province or region. | | | Guzzetti et al., 2020 | Warning dissemination and communication |

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| Resilience | The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. | | | UNISDR, 2009 | Disaster risk knowledge |
| Resilience | The capacity of a system to tolerate perturbation or disturbances without collapsing into a qualitatively different state, to withstand shock and rebuild whenever necessary. | | | NDMA, 2009 | Disaster risk knowledge |
| Response | The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected. | | | UNISDR, 2009 | Preparedness and response capabilities |
| Retrofitting | Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards. | | | UNISDR, 2009 | Preparedness and response capabilities |
| Risk | The combination of the probability of an event and its negative consequences. | | | UNISDR, 2009 | Disaster risk knowledge |
| Risk | The anticipated number of lives in danger, damage to property and disruption of economic activity due to a particular natural phenomenon. | | | NDMA, 2009 | Disaster risk knowledge |
| Risk assessment | A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the environment on which they depend. | | | UNISDR, 2009 | Disaster risk knowledge |
| Risk assessment | The determination of the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihood, and the environment. | | | NDMA, 2009 | Disaster risk knowledge |
| Risk management | The systematic approach and practice of managing uncertainty to minimize potential harm and loss. | | | UNISDR, 2009 | Disaster risk knowledge |
| Risk management | The systematic process of using administrative decisions, organisation, operational skills, and capacities to implement policies, strategies, and coping capacity of the society and communities to lessen the impact of hazards. | | | NDMA, 2009 | Disaster risk knowledge |
| Rock avalanche | Extremely rapid, massive, flow-like motion of fragmented rock from a large rock slide or rock fall. | | | Hungr et al., 2014 | |
| Set of thresholds | Threshold system in which, for a given area, two or more thresholds are defined to identify three or more warning states, usually to account for different probability of landslide occurrence of different severity of the expected event. | | | Proposed by LandAware from Segoni et al., 2018 | |
| Shallow soil slide | A general term to indicate a planar or rotational slide in soil, with a very shallow sliding plane and characterized by a short runout (<30 m). | | | Proposed by LandAware | |
| Single hazard risk assessment | Approaches to assessing hazard potential, in which hazards are treated as isolated and independent phenomena. | | | Gill and Malamud, 2016 | Disaster risk knowledge |
| Slushflow | Fast downslope movement of snow from a highly water saturated snow pack. | | | Hestnes, 1998 | |
| Snowmelt-induced landslides | Landslide triggered by intense snowmelt episodes. | | | Proposed by LandAware | Disaster risk knowledge |
| Societal (or collective) risk | Risk imposed by a landslide on society as a whole. | | | Fell and Hartford, 1997; Guzzetti et al., 2005; Salvati et al., 2010 | Disaster risk knowledge |

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| Societal-risk criteria | Criteria established constructing frequency-consequences plots, on which the number of losses in each event is plotted versus the frequency of the event, and investigating the relationships between the frequency of the events and their intensity. | | | Fell and Hartford, 1997; Guzzetti et al., 2005; Salvati et al., 2010 | Disaster risk knowledge |
| Socio-natural hazard | The phenomenon of increased occurrence of certain geophysical and hydrometeorological hazard events, such as landslides, flooding, land subsidence and drought, that arise from the interaction of natural hazards with overexploited or degraded land and environmental resources. | | | UNISDR, 2009 | Disaster risk knowledge |
| Stage of LEWS | A point, period, or step in the development of a LEWS. | | | Proposed by LandAware from Oxford Languages and Guzzetti et al., 2020 | |
| Stakeholder | The institution or person that is interested or concerned in landslide hazard prediction and prevention. | | | Proposed by LandAware | |
| Statistical thresholds | Thresholds that are determined through statistical approaches (e.g., frequentist), Bayesian approaches and conditional probability approaches. | | | Brunetti et al., 2010; Berti et al., 2012; Guzzetti et al., 2020 | Disaster risk knowledge |
| Structural measure | Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard resistance and resilience in structures or systems. | | | UNGA, 2016 | Preparedness and response capabilities |
| Structural measure | Any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant, protective structures and infrastructure. | | | NDMA, 2009 | Preparedness and response capabilities |
| Technological hazard | A hazard originating from technological or industrial conditions, including accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. | | | UNISDR, 2009 | Disaster risk knowledge |
| Temporal prediction of landslides | The determination of the time of collapse of a landslide (or part of it) within an acceptable margin of error (where the term “acceptable” is linked to the concept of acceptable risk). Temporal prediction can be performed at global/regional scale or at slope-scale; the choice of the scale is usually linked to the choice of the monitored parameters. | | | Intrieri et al., 2019 | |
| Territorial LEWS | LEWS that are dealing with the possible occurrence of multiple landslides at regional scale (e.g. a nation, a region, a municipal territory, a river catchment.) | Te-LEWSs | Geographical LEWS | Piciullo et al., 2018 | Warning dissemination and communication |
| Thresholds | A threshold as a condition—expressed in quantitative terms by a mathematical law—whose overcoming results in a change of state of a system. | | | White et al., 1996 | Disaster risk knowledge |
| Thresholds | The minimum or maximum level of a quantity needed for a process to take place, or a state to change. | | | White et al., 1996; Guzzetti et al., 2020 | Disaster risk knowledge |
| Volcano- induced landslide | Landslide triggered by volcanic activity (i.e. volcanic lava may melt snow rapidly, which can form a lahar that accelerates rapidly on the steep slopes of volcanoes, devastating anything in its path; volcanic flank- or sector collapses that can cause rockslides, landslides, and debris avalanches; periodic failure of volcanic islands perimeter areas that can create massive sub-marine landslides that may also rapidly create deadly tsunamis that can travel and do damage at great distances). | | | Proposed by LandAware | Disaster risk knowledge |

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| Vulnerability | The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. | | | UNISDR, 2009 | Disaster risk knowledge |
| Vulnerability | The degree of loss to a given element at risk or set of such elements resulting from the occurrence of a natural (or man-made) phenomenon of a given magnitude and expressed on a scale from 0 (no damage) to 1 (total loss). | | | NDMA, 2009 | Disaster risk knowledge |
| Warning | A warning is issued when a hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurring. A warning is used for conditions posing a threat to life or property. | | Alert | NOAA, 2022 | Warning dissemination and communication |
| Warning | An advice, a recommendation or an order to take an action e.g., to abandon an area, to remain inside a building or structure, to move to an upper floor. | | Alert | Hamilton et al., 1997; Guzzetti et al., 2020 | Warning dissemination and communication |
| Warning area | It is the area in which the warning has been issued (indicated with a map or a specific monitored site). | | Warning zone | Proposed by LandAware from Krøgli et al., 2020 | Warning dissemination and communication |
| Warning communication platform | It is a cloud-based platform that allows practitioners to add communication services like warning messaging, status reports to their landslide warning operations. | | | Proposed by LandAware | Warning dissemination and communication |
| Warning level | It is the level that indicate which hazard degree is expected (expressed with a colour and a number). | | | Proposed by LandAware from Krøgli et al., 2020 | Warning dissemination and communication |
| Warning message | It is a written communication composed of three main parts: 1) warning area, 2) warning level, and 3) warning text. | | | Proposed by LandAware from Krøgli et al., 2020 | Warning dissemination and communication |
| Warning model | A set of decision-making procedures required for issuing the alert levels. The warning model includes the landslide model. | | | Pecoraro et al., 2019 | |
| Warning models | A framework for issuing landslide advisories. It can include one or more landslide models and advisory criteria i.e., rules, procedures, and protocols used to decide and issue advisories. | | | Guzzetti et al., 2020 | Warning dissemination and communication |
| Warning system | Warning systems aim to detect significant changes in the environment (time-dependent factors determining, susceptibility with respect to mass release), e.g., crack opening, availability of loose debris material and potential triggering events (e.g., heavy rain), before the release occurs and thus allow experts to analyze the situation and implement appropriate intervention measures. | | | Stähli et al., 2015 | Warning dissemination and communication |
| Warning system | The physical implementation of a warning model, which may contain one or more landslide forecast models. | | | Guzzetti et al., 2020 | Warning dissemination and communication |
| Warning system | It embeds the landslide and the warning model and includes the following risk management elements: lead time, alert dissemination, communication and education, community involvement, and emergency response plan. | | | Pecoraro et al., 2019 | |
| Warning text | It is a part of the warning message that describe the warning. The text includes title, prognosis, type of hazard, consequences expected, suggestions, and period during which the warning is valid. | | | Proposed by LandAware from Krøgli et al., 2020 | |
| Water-induced landslides | Landslides triggered by slope water saturation. Slope saturation by water can occur due intense rainfall, snowmelt, changes in ground-water levels, and surface-water level changes along coastlines, earth dams, and in the banks of lakes, reservoirs, canals, and rivers. | | | Proposed by LandAware | Disaster risk knowledge |
| Weather forecast models | They are computer programs that can help predict what the weather will be in the future, any time in the future from an hour to ten days out and even months ahead. | | | Opensnow.com | |

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| Weather forecasts and warnings | Forecasts and warnings that contain information that refers only to atmospheric variables and how they are expected to change. In the case of weather warnings, the focus is on forecasting weather-based hazards only. | | | WMO, 2015 | Detection, monitoring, analysis and forecasting |
| Weather-induced landslides | Landslides caused by either rainfall episode or snowmelt episodes or combination of both. | | Meteo-induced landslides | Proposed by LandAware | Disaster risk knowledge |