A	
Accident	An event that is without apparent causes or is unexpected. Generally, an unfortunate event, possibly causing physical harm or damage brought about unintentionally.
Act of God	Act of God is an event with a probability of occurrence below the generally defined credibility threshold. In our day-to-day practice we consider any event down to 10-5 as credible, between 10-5 and 10-6 as poorly credible, and below 10-6 as incredible, hence an Act of God.
B	
Bayesian probabilities	The personalist (subjectivist) or Bayesian view considers the probability of occurrence of an event as the degree of belief that the event will occur, given the level of knowledge presently available. In this view, estimates are considered “first or a priori” estimates, to be perfected with updates whenever further information becomes available. See also probabilities (concept and numerical).
Business as usual	Business as usual is defined in our day-to-day practice as an unchanging state of affairs despite the occurrence of non-divergent hazards of any kind (man-made, natural). The variability of any parameter as considered and specified in the design is “business as usual” and does not represent a hazard. For example, the variation of the oil price of ±10% in a project could be considered as “business as usual” if so specified, whereas +30% would be a non-divergent hazard. The hazard and its consequences are always subject to uncertainties.
Business Continuity Planning (BCP)	It identifies an organization’s exposure to internal and external threats, synthesizes hard and soft assets to provide effective prevention and recovery for the organization, while maintaining competitive advantage and value system integrity. A BCP is a roadmap for continuing operations under adverse conditions such as extreme storms or cyber-attacks. In the US, governmental entities refer to the process as Continuity of Operations Planning (COOP). Business continuity planning is often used to refer to those activities associated with preparing documentation to assist in the continuing availability of property, people and information and processes.
Business Impact Analysis (BIA)	Business Impact Analysis is a systematic process to determine and evaluate the potential effects of an interruption to critical business operations as a result of a disaster, accident or emergency.
Business Interruption (BI)	Business Interruption which can be evaluated in duration (days, week, months) or monetary terms (M$).

C	
Catastrophe	A great and usually sudden disruption of the human ecology or operation which exceeds the capacity of the community or operation to function normally, unless disaster preparedness and mitigation measures are in place.
Common Cause Failure (CCF)	Item or process failures resulting from a single shared (common root) cause and coupling factor(s) or mechanisms leading to failure.
Consequence function	A holistic consequence function integrating all dimensions considered in a risk assessment, such as, for example: health and safety, environmental, economic, and financial direct and indirect effects.
Contingencies	When evaluating a project/operation, contingency should include “business as usual” variations and risks.
Convergent risk assessment	Convergent risk assessments integrate areas that are significant to an organization, such as operational risk generated by various hazards or compliance, within a single framework. A risk assessment that looks at a silos-free system where physical, informational, operational silos converge in a single platform. Convergent risk assessments must be holistic by definition. A holistic risk assessment is not necessarily convergent as it can be performed within a silo system (e.g. a certain type of process within a company, certain operations, etc.).
Corporate Social Responsibility (CSR)	Corporate Social Responsibility is a business approach that contributes to sustainable development by delivering economic, social, and environmental benefits for all stakeholders. CSR is a very broad concept that addresses many and various topics such as human rights, corporate governance, health and safety, environmental effects, working conditions and contribution to economic development. CSR and risk assessment should share many, if not all, dimensions related to performance criteria and consequences. Thus, they should always be considered as synergistic and aiming toward a common goal of long-term sustainability and enhanced resilience.
Cost of consequences	A measure of the impact of a hazard on potential receptors, obtained through a consequence function integrating various components such as direct costs, replacement costs, indirect costs (loss of business etc.), social costs, political costs, public reaction costs etc.
Coefficient of Variation (CoV)	The coefficient of variation is defined as the ratio of the standard deviation to the mean. The acronym should not be mistaken with Cov which indicates “covariance”, a measure of how changes in one variable are associated with changes in a second variable.
Credibility threshold	A probability of 10-5 -10-6 per year is commonly considered as the threshold value of human credibility. Going below would require solid evidence.
Crisis	A decisive moment, particularly in times of danger or difficulty.

Crisis and Reputation (CR)	Proneness of an accidental event to generate reputational damages. It is used as an amplifier of the other consequence metrics of an accident.
Crisis Management (CM)	A set of techniques that manage the public relations and media relations implications of crisis situations that have the potential to damage or destroy the image and/or function of an organization. Crisis management is also an organizational discipline involving logistics experts, security managers and technical communications experts.
Crisis Management Plan	A CM Plan is the compass in the middle of the fog, i.e. in a crisis. A CM Plan encompasses several components.
D	
Decision Trees, Event Trees	Decision support tools using a graph or model of decisions and their possible consequences, including chance event outcomes, resource costs, and utility. A decision tree can be used to prioritize strategies. A common use of event trees is for calculating conditional probabilities.
Design Acceptance Criteria (DAC)	A Design Acceptance Criteria defines the limit values of hazard level and in some cases of qualitative risk that an infrastructure will be allowed to generate. It is a function of intuitively accepted risk criteria, the result of perceived mitigative, measures, and the structure quality itself. Rarely DAC are truly risk-informed, i.e. based on specific risk assessments, and therefore remain generic and must be taken with caution.
Disaster	A disaster is any nefarious event that will significantly affect societal or business' operations: "Traditional" disasters include fires, floods, hurricanes, and earthquakes. "Non-traditional" disasters may include terrorist strikes, toxic waste dispersions, computer system crashes and labor strikes.
Disaster Recovery & Business Resumption Planning (DRP & BRP)	A DRP consist of two parts: "Disaster recovery", i.e. the process of restoring the ability to operate; and "Business resumption", i.e. the process of re-opening each of the facility components.
Divergent	Hazards or exposures become divergent when they part from long-term averages and "usual extremes", both in terms of frequencies and/or magnitude. For example, a hundred-year rain event that occurs three times in a short interval is a divergent event until new long-term behavior is established.
E	
Environmental Damages	One of an accident consequence metrics that encompasses the cost of remediation of the damages to the environment as well as fines.
Element (or node)	These are the physical or logical constituents of the system. They are the vertices of the system map/graph with the vectors joining them representing the flow of resources (raw material, fluids, gases, finances, information, people, etc.)

Emergency	An unforeseen combination of circumstances or the resulting state that calls for immediate action. An urgent need for assistance or relief as in: “the governor declared a state of emergency after the flood”.
Effective Stress Analysis (ESA)	A geomechanical analysis using drained shear strength parameters of soils.
Enterprise Risk Management (ERM)	Methods and processes used by organizations to manage upside or downside risks. ERM provides a framework for risk management (See Risk Management), which typically involves identifying particular events or circumstances relevant to the organization’s objectives (risks and opportunities), assessing them in terms of likelihood and cost of consequences, determining a response strategy, and monitoring progress. By identifying and proactively addressing risks and opportunities, business enterprises protect and create value for all their stakeholders.
F	
Factor of Safety (FoS)	Factor of Safety expresses how much stronger a system is than it needs to be for an intended load. It is evaluated as FoS=Resisting/Loads. If FoS=1 the structure is in metastable equilibrium as resisting forces are equal to loads. It is a deterministic design parameter as each variable entering in its evaluation is assumed to be known with certainty (deterministic variable). However, it is recognized that a larger FoS does not necessarily represent a safer slope, as the magnitude of the implicit uncertainties is not captured by the FoS value.
Failure criteria	See Performance Criteria
Fatal Accident Rate (FAR)	The fatal accident rate is the expected number of fatalities per time period of exposure.
Force Majeure Clauses	A term used in contracts to define events which are considered an Act of God. An event at or below human credibility (less than 1/100,000 to 1/1,000,000).
Foreseeability	Foreseeability is the facility to perceive, know in advance, or reasonably anticipate that damage or injury will probably ensue from acts or omissions. A foreseeable event or situation is one that can be known about or guessed before it happens.
Frequency	Frequency or relative frequency is a proportion measuring how often or how frequently something occurs in a sequence of observations. The frequency interpretation of probability, in which probabilities are understood as mathematically convenient approximations of long-run relative frequencies, can also be used. In the frequentist view of probabilities, the probability of an event is defined as the frequency with which it occurs in a long sequence of similar trials.

	For example, in the toss of a coin, the frequentist approach says that the probability of a head is 0.5, i.e. that the long run frequency converges towards 0.5 when the number of tosses increases. In the case of a coin toss, few would question this definition, but if the analysis focuses on, for example, estimation of the occurrence of a unique event (a terrorist attack against a facility), the long-run aspect of this approach is clearly non-applicable. See also probabilities (concept and numerical).
G	
Geotechnical Review Board (GRB)	Establishes reviews of the technical aspects of the investigations, designs, construction, operation, and closure of major geotechnical structures.
H	
Hazard	A condition with the potential to cause undesirable consequences. An event-scenario, a person or a group of persons, a behaviour, etc. with a certain likelihood of occurrence and potential consequences on the system can be hazards. Hazards do not need to be events (quake, typhoon, etc.) as described in the examples below: a potentially unstable rock of a given magnitude (for example, volume of sliding mass). • a family of terrorist groups • a certain type of corrupting agents • arrogance leading to excessive audacity in design etc.
Hazard Identification (HI)	A phase of a Risk Assessment during which hazards are identified as well as related potential consequences. Hazard identification answers the question, "What can go wrong?"
Hazard Management (HM)	The set of techniques used to define hazards and to rate them in terms of likelihood or magnitude and then decide mitigations based on those factors. Hazard Management is not equivalent to Risk Management which prioritizes risks and uses tolerance criteria to define mitigative actions.
Health and Safety (H&S)	One of the consequence metrics of an accident. It includes measures of harm to people, encompassing the PLL (see PLL) and WTP (see WTP). This metric can be compared to societal tolerance thresholds.
Holistic risk assessment	or 360-degrees risk assessment. A Risk assessment (See risk assessment) including all hazards to the system under assessment (e.g. cyber, terrorism, natural, etc.).
I	
Incident	An event or occurrence that attracts general attention or that is otherwise noteworthy in some way. Not to be confused with an accident.
Interdependencies and domino effects	A chain reaction that occurs when a small change causes a change nearby, which then causes another change, and so on in linear sequence. It typically refers to a linked sequence of events where the time between successive events is relatively

	small. It can be used literally (an observed series of actual collisions) or metaphorically (causal linkages within systems such as global finance or politics).
Intolerable risks	The tolerance threshold defined for a risk assessment splits the risk space in two main regions encompassing respectively the tolerable and the intolerable risks. See Quantitative Risk Tolerance (or tolerability) Curves (QRTC); tolerable risks.
Individual Risk Per Annum (IRPA)	IRPA is the probability that a hypothetical individual will be killed due to exposure to hazards or activities for one year.
M	
Maximum Credible Earthquake (MCE)	The maximum credible earthquake is defined as the maximum event considered likely to occur in a reasonable amount of time. Reasonable amount of time is defined by the historical or geologic record.
Mitigation	Measures and activities implemented with the goal of reducing the hazard (probability of occurrence).
N	
Near miss	An incident that didn't evolve into an accident.
Normalization of deviance	The behavioral process by which people within an organization become so accustomed to a deviant anomalous behavior or event that they consider it as normal, despite the fact that it exceeds the initial design criteria, rules of safety or industry standards.
P	
Performance criteria	The performance criteria is the set of criteria for which the system is designed/created. The performance criteria is generally multidimensional including for example: production, maintenance, energy use, health and safety, environmental and social impacts, share value, financials, etc. If the performance criteria is not met then the system is failed and risks are generated. The nemesis of the performance is the failure. When performing a risk assessment, it is paramount to understand the metric ("viewing angle" e.g. corporate, investor, regulators, public) of the performance criteria. Sometimes a unified "multi-dimensional" metric is used.
Physical losses (PL)	One of an accident consequence metrics that encompasses the monetary loss of a physical asset.
Potential Loss of Life (PLL)	The potential loss of life is the expected number of fatalities within a specified population (or within a specified area) per annum.

Predictability	Predictability is the state of knowing what something is like, when something will happen, etc.: we apply it to hazards: can we predict the magnitude and the frequency of a hazard?
Probabilities (concept)	The set of mathematical rules used to evaluate the stochastic (uncertain, possible) character of an occurrence by evaluating the number of chances of the occurrence of the phenomenon over a total number of possible occurrences.
Probabilities (numerical)	A measure of the likelihood of an event, expressed with numerical values ranging from 0 to 1, where 0 represents impossibility and 1 certainty. Probability is often interpreted as a subjective degree of belief (opinion, subjective interpretation) (See subjective probabilities). Many assessment methods rely on subjective probabilities. These probabilities are determined by employing the expert opinion of an individual or a consensus of highly qualified professionals.
Probability of Failure (General)	The failure probability pf is defined as the probability for exceeding a limit state within a defined reference time period.
Probability of Failure (mechanical)	The probability of failure (PoF or pf) is defined in mechanical terms as the probability for exceeding a limit state. It is expressed as p(Resistance<=Loading) and in a simplified way as p(FoS<=1) (see FoS). It can be calculated in a number of ways pertinent with the level of knowledge the analyst can express on the variables entering in the formulation of resistance and loading, which both are stochastic in nature.
Problem	A doubtful or difficult matter requiring a solution; sudden deviation from an expected performance or the existence of a permanent deviation from an expected performance. See normalization of deviance.
Public Relations (PR)	A management function that helps to define organizational objectives and philosophies and facilitates organizational change. Public relations practitioners communicate with all relevant internal and external public in an effort to create consistency between organizational goals and societal expectations. More specifically, PR can be used in risk communication and crisis management (See Risk communication, Crisis Management).
Q	
Quantitative Risk Tolerance (or tolerability) Curves (QRTC)	A threshold (curve) dividing the probability-consequence graph into two regions: tolerable and intolerable risk realms. Interested readers can refer to: • Improving Sustainability through Reasonable Risk and Crisis Management, by Franco & César Oboni, ISBN 978-0-9784462-0-8, 2007. • C. Oboni, F. Oboni, Aspects of Risk Tolerability, Manageable vs. Unmanageable Risks in Relation to Governance and Effective Leadership, Geohazards 6 (2014), Kingston (ON), Canada, June 15 – 18, 2014. • Oboni, F., Oboni, C., Is it true that PIGs fly when evaluating risks of tailings management systems? Short Course and paper, Tailings and Mine Waste ’12, Keystone Colorado

R	
Resilience	The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure.
Risk Assessment	The process leading to estimating and evaluating risks. (See Risk, Risk Estimation, Risk Evaluation). Risk assessments can be qualitative or quantitative.
Risk (Downside)	The product (multiplication) of the probability of occurrence of a hazard by the cost of the undesirable consequences resulting from the occurrence of the hazard. In some cases, the product is not expressed, and probability of occurrence p and cost of consequences C may be plotted as points on a p-C graph.
Risk Estimation	May be based on historical data, logical models (fault and event trees), or mathematical models. Probabilities can be assigned subjectively or objectively if a historical database is available. Risk estimation helps answer the questions, what is the likelihood of the hazard, what will happen, and what areas will be affected?
Risk Evaluation	The process of determining acceptable risk. There are upper and lower limits (or thresholds) to risk that need to be defined before risk control can take place. These thresholds are often influenced by society's level of accepted risk.
Risk Communication	The US National Research Council defines risk communication as "an interactive process of exchange of information and opinion among individuals, groups, and institutions". Risk Communication is part of the RM/CM process and, in a way, risk mitigation at the non-technical level. Stakeholder analysis must be performed to prepare a risk communication campaign.
Risk Control	The process of deciding on measures to control risks and monitoring the results of implementation. Risk control utilizes findings from risk assessments. Risk control can answer the question, what can be done to reduce the risk? See for example http://www.investopedia.com/terms/r/risk-control.asp for details.
Risk Management (RM)	The complete process of risk assessment and risk control, i.e. the result of a rational approach to risk analysis and evaluation, and the periodic monitoring of its effectiveness using the results of Risk Assessments (RA) as one input.
Root Cause Analysis (RCA)	Encompasses methods aimed at identifying the root causes of problems or events. RCA users believe that problems are best solved by attempting to correct or eliminate root causes, as opposed to addressing the symptoms. By directing corrective measures at root causes, it is hoped that the likelihood of problem recurrence will be minimized. RCA is often considered to be an iterative process and is frequently viewed as a tool of continuous improvement. See for example https://en.wikipedia.org/wiki/Root_cause_analysis for details.

S	
Social license to operate (SLO)	The social license to operate refers to the level of acceptance or approval by local communities and stakeholders of mining companies and their operations.
Statistics	The set of mathematical interpretative techniques to be applied to phenomena that cannot be studied deterministically because of the number and complexity of their parameters. An example of such a phenomenon would be the duration of a flu-related sick leave. There are dozens of driving parameters, including physical and mental fitness of the sick person, the environment and so on. There is certainly no deterministic magic formula to determine the duration of the required leave. As a result, it is possible to say only that a flu-related sick leave lasts from three to ten days, with an average of five and a standard deviation of one, for example.
Strategic Risks	Risks that can be mitigated in a sustainable and economic way below tolerance (See Quantitative Risk Tolerance (or tolerability) Curves (QRTC).) by reducing their hazard probability are tactical risks. Risks which require system's alterations (mitigations to reduce consequences and get the risk under tolerance) are strategic risks. • Tactical risks are under management responsibility; • Strategic risks, might require upper management to shift their objectives. Example: buttressing a dam to reduce its breach probability is a tactical mitigation; replacing a process using toxic gases with a non-toxic based on is a strategic mitigation.
Subjective Probabilities	Many assessment methods rely on subjective probabilities. These probabilities are determined by employing the expert opinion of an individual or a consensus of highly qualified professionals.
Success criteria	See Performance Criteria
System	The object of a risk assessment including all pertinent inter-dependencies (physical, geographical, logical, informational necessary to its operation or a clear delimitation of selected boundaries assumptions. The boundaries of the system define what is in the system, respectively what is outside of the system, and help define threats-to and threats from system's elements. The definition of the project "context" in compliance with ISO 31000, including all the assumptions on the project environment, chronology etc. helps defining the system.
T	
Tactical risks	See strategic risks
Threat-from/Threat-to	An analysis used to link identified external or internal hazards: • to particular targets (elements of the system) OR • from elements to targets lying outside of the system (population, environment, third parties, etc.). Each couple is qualified in terms of possible nefarious outcomes (consequences).
Tolerable risks	See intolerable risks.

U	
Uncertainties	Always follow these wise words: “It is better to be roughly right than precisely wrong.”— John Maynard Keynes. Indeed, assessing a deterministic (single value) estimate of a probability and consequences, leads to misconception and oftentimes to mistakes, even if “historic /statistical values” are available, or even if a mathematical model is used. The minimum we should do is to define a range: Min-Max, unless there are solid data to support a more sophisticated definition (stochastic distribution based on scientific approaches). In many cases it is possible that the level of uncertainties warrants the use of wide ranges for the probabilities and the consequences. Neglecting uncertainties is a common fault in common practice risk assessments.
Undrained Shear Strength Analysis (USA)	A geomechanical analysis using shear stress that an undrained soil can sustain.
W	
Willingness To Pay (WTP)	The amount of money a society is agreeable to pay to save a life. Interested readers can refer to: • Marin, A., Costs and Benefits of Risk Reduction. Appendix in Risk: Analysis, Perception and Management, Report of a Royal Society Study Group, London, 1992; • Mooney, G.M., The Valuation of Human Life, Macmillan, 1977; • Jones-Lee, M.W. The Economics of Safety and Physical Risk, Blackwell, Oxford, 1989; • Lee, E.M., Jones, D.K.C., Landslide Risk Assessment, Thomas Telford, 2004; • Pearce, D.W. et Al. The Social Costs of Climate Change: Greenhouse damage and the benefits of control. In Climate Change 1995: Economic and Social Dimensions of Climate Change. Contribution of Working Group III to the Second Assessment Report of the IPCC, Cambridge University Press, 1995