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## PREVENTIVE CONSERVATION: REDUCING RISKS TO COLLECTIONS

International Course – Sibiu, 18 June-6 July 2007

# COURSE GLOSSARY

## GLOSSARY SOURCES

**AS/NZS 4360:2004** : Definition of terms in *Risk Management, Australian/New Zealand Standard, AS/NZ 4360:2004*. Can be purchased online at [www.saiglobal.com/shop/Script/search.asp](http://www.saiglobal.com/shop/Script/search.asp) . The glossary in its 1999 form, as well as a full training program, at

<http://www.riskmanagement.qld.gov.au>

**AMOL** : Glossary in *Significance, A Guide To Assessing The Significance Of Cultural Heritage Objects And Collections*. Commonwealth of Australia 2001 on behalf of the Heritage Collections Council. [http://sector.amol.org.au/publications\\_archive/museum\\_management/significance](http://sector.amol.org.au/publications_archive/museum_management/significance)

**EEA** : <http://glossary.eea.europa.eu/EEAGlossary> (best glossary for multilingual conversions of risk terms)

**ERA/EPA** : Ecological Risk Assessment, US Environmental Protection Agency. Glossary at <http://www.epa.gov/R5Super/ecology/html/glossary.html#l>

**IOSH** : Institution of Occupational Safety and Health, *Risk Management Toolkit* glossary <http://www.iosh.co.uk/files/technical/irma/IRMAGlossary.pdf>

**JT** : Glossary in Tétrault, J., 2003. *Airborne Pollutants in Museums, Galleries, and Archives: Risk Assessment, Control Strategies, and Preservation Management*. Canadian Conservation Institute, Ottawa.

**MW** : Definition from Merriam-Webster on-line dictionary at <http://www.m-w.com> Where multiple definitions are given the one matching the sense in which the word is used in this course is underlined.

**PCC** : The Presidential/Congressional Commission on Risk Assessment and Risk Management, Final Report, 1997. Volume 2 contains a glossary, available at

<http://www.riskworld.com/Nreports/1997/risk-rpt/volume2/html/v2epaglo.htm>

**UN/ISDR** : United Nations, International Strategy for Disaster Reduction, terminology web page: <http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm>

**RW** : Glossary in Waller R., 2003, *Cultural Property Risk Analysis Model, Development and Application to Preventive Conservation at the Canadian Museum of Nature*, Goteborg Studies in Conservation 13, Goteborg Acta Universitatis Gothoburgensis. xvi + 189 pp.

**Ed** : Comments or definitions by Stefan Michalski, CCI, editor of this glossary, with advice from C. Antomarchi, A. Brokerhof, J.L. Pedersoli, J. Tétrault, I. Verger, R. Waller.

\* **AS/NZS 4360:2004** will be adopted as the preferred source of terms, definitions, and concepts for this course. They have been identified in the glossary by an asterix(\*).

Glossary compiled by S. Michalski, Sept 2006, based on the 2005 ICCROM-CCI course version compiled by V. Zivkovic and S. Michalski.

## A

### Acceptable risk

(See also *residual risk*, *risk retention*)

**UN/ISDR :** The level of *loss* a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.

### Adverse effect

(See also *lowest observable adverse effect dose*, *LOAED*)

**JT :** The first visually perceptible change; a specific chemical or physical characteristic of the material/object usually considered abnormal or undesirable. This term is commonly used for risk analysis in the fields of health, safety, and environmental policy.

**Ed :** See **ERA/EPA** for equivalent definitions in the health and environmental sciences. The term is not defined in **AS/NZS 4360:2004**. A study of the term as used in hundreds of US regulatory documents concluded: “Our major finding is that the federal statutes themselves give little or no definition or guidance regarding the precise meanings or intended interpretations of “adverse effect” and related terms. Though some statutes purport to define these terms, the definitions are often circular and of little value because they include the term being defined as part of its definition. The statutes generally do not speak to the scientific methods to be used to calculate adverse effects... The lack of precise definitions of “adverse effect” and similar terms leaves their interpretation and application largely in the hands of agency staff (in particular, agency scientists).” K. Stansell and M. Marvelli, J. B. Wiener “*Adverse Effects*” *And Similar Terms In U.S. Law*, Duke Center for Environmental Solutions, July 2005.

### Agent of deterioration

(see also *deterioration*)

**Ed. :** Within collection risk management, an *agent of deterioration* is one of a limited and comprehensive set of *agents* that cause *deterioration*. These *agents* are selected to represent all the causes that act near the artefact (at a practical human scale, not the microscopic). In the list of the CCI Preservation Framework Poster ([http://www.cci-icc.gc.ca/framework/index\\_e.shtml](http://www.cci-icc.gc.ca/framework/index_e.shtml)) there are nine agents, within Waller (**RW**) there are ten. They are 1. Physical forces; 2. Thieves and vandals and displacers (CCI Framework) or Criminals (Waller) 3. Fire; 4. Water; 5. Pests; 6. Contaminants; 7. Radiation (Light and UV) 8. *Incorrect temperature* 9. *Incorrect relative humidity*; 10. Dissociation. (In earlier versions of Waller this tenth term was “custodial neglect”.)

## C

### Comparative risk assessment

**PCC:** The process of comparing and ranking various types of risks to identify priorities and influence resource allocations.

**Ed.** The original **PCC** definition above (1997) used the word analysis rather than assessment but we adopt here the general international convention of using assessment as the broader term. For example, the most recent European publication on this concept is titled: H. Schütz et al., 2006, *Comparative Risk Assessment: Concepts, Problems and Applications*, Wiley. Collection risk assessment is a comparative risk assessment.

## Comparisons of risk

(see also *equivalent risks*)

**PCC** : Using two or several more-or-less similar or *equivalent risks* to assist in communicating information about risk estimates.

## Consequence\*

**AS/NZS 4360:2004** : outcome or *impact* of an *event*.

NOTE 1: There can be more than one consequence from one event.

NOTE 2: Consequences can range from positive to negative.

NOTE 3: Consequences can be expressed qualitatively or quantitatively.

NOTE 4: Consequences are considered in relation to the achievement of objectives.

## Control\*

**AS/NZS 4360:2004** : an existing process, policy, device, practice or other action that acts to minimize negative risk or enhance positive opportunities

NOTE: The word 'control' may also be applied to a process designed to provide reasonable assurance regarding the achievement of objectives.

## Control assessment\*

**AS/NZS 4360:2004** : systematic review of processes to ensure that *controls* are still effective and appropriate

NOTE: Periodic line management review of controls is often called 'control self assessment'.

## CPRAM

Cultural Property Risk Analysis Model. As described in the source **RW**.

D
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## Damage

**MW** : 1 : loss or harm resulting from injury to person, property, or reputation. 2 plural : compensation in money imposed by law for loss or injury

## Deteriorate

**MW** : 1 : to make inferior in quality or value : impair. 2 : disintegrate: to become impaired in quality, functioning, or condition : degenerate

## Deterioration

(See also *damage, deteriorate*)

**MW** : the action or process of deteriorating : the state of having deteriorated.

## Disaster

**MW** : 1. a sudden calamitous event bringing great damage, *loss*, or destruction.

**UN/ISDR** : A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental *losses* which exceed the ability of the affected community or society to cope using its own resources. A disaster is a function of the risk process. It

results from the combination of *hazards*, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative *consequences of risk*.

## Disaster risk management

(see also *disaster*)

**UN/ISDR** : The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural *hazards* and related environmental and technological *disasters*. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (*mitigation and preparedness*) *adverse effects of hazards*.

## Dose

(See also *dosimeter*)

**MW** : 1 a : the measured quantity of a therapeutic agent to be taken at one time b : the quantity of radiation administered or absorbed. 2 : a portion of a substance added during a process. 3 : an amount of something likened to a prescribed or measured quantity of medicine

## Dosimeter

(See also *dose*)

**Ed.** : A small piece of a material that reacts to some agent, such as light or pollutants with a well-characterised change for a particular *dose*, or exposure. The simplest to use are based on a colour change (such as the Blue Wool standards for light exposure) while others require reading instruments. Considerable conservation science research has been funded recently by the EU for the development of dosimeters to *monitor* conditions in museum collections.

## E

### Emergency preparedness plan

(See also *preparedness*)

A written, working document which describes procedures for any given emergency, and provides any additional information required for carrying out these procedures. **SIMILAR TERMS**: Emergency Contingency Plan, Disaster Plan, Emergency Plan, Emergency Preparedness Plan, Disaster Preparedness Plan, and Salvage Plan.

### Equivalent risk(s)

(See also *comparison of risks*)

**Ed** : Two different risks are equivalent if each has been give the same score on a common scale, i.e., they have the same *magnitude of risk*. The ability to show that different risks are equivalent, or that one is greater than the other, is the essence of *comparative risk assessment*. It is also a tool in communicating risk, for example, in reporting collection risks, **RW**: (p 89) provides the *equivalent risk* in terms of total objects lost.

### Event\*

**AS/NZS 4360:2004** : occurrence of a particular set of circumstances

NOTE 1: The event can be certain or uncertain.

NOTE 2: The event can be a single occurrence or a series of occurrences.

(ISO/IEC Guide 73, in part)

**MW** : 2.a. something that happens : occurrence b : a noteworthy happening

**Ed.** : Note: for collection *risk assessment* an event can be a continual process occurring over a specific time period, e.g., over the next century.

### **Expertise**

**IOSH** : Skills, training, experience and ability of internal and external workforce.

**Ed.** : Note that in this practical definition in the IOSH toolkit for small and medium enterprises (SME's) the *expertise* that supports risk assessment is not restricted to the usual sense of “experts” but extends to all staff, as it does in collection *risk assessment*.

### **Extent**

**RW** : (CPRAM term) The measure to which a *specific risk* will result in *loss in value* to the *fraction susceptible* of a collection over a century. It reflects the amount of the *fraction susceptible* that is affected, or the degree to which a potential *loss in value* is realized, or both.

**Ed.** : In *risk* related discussions and *scenarios*, extent is often used in its general sense, not its formal CPRAM sense. To avoid ambiguity in *scenarios* written for CPRAM purposes, it may be preferable to use another word, such as “degree” or “*spread*,” unless the CPRAM sense is intended.

### **External hazard**

(See also *hazard, internal hazard, natural hazard*)

**Ed.** : A *hazard* that originates outside an *organization*.

## F

### **Fraction of the collection**

(See also numerous terms beginning with *fraction of the collection...*)

**Ed.** : A reference to a part of the collection in terms of a numerical fraction, such a ¼, or 0.25, or 25%, or simply in terms of semi-quantitative words such as “few”, “most”, “all”. The phrase is used in various *risk assessment contexts*, and is ambiguous in its meaning unless used within a specific method where it is defined, or where it has a modifier attached such as “susceptible” or “exposed” or “affected.”

### **Fraction of the collection affected**

(See also numerous terms beginning with *fraction of the collection...*)

**Ed.** : The fraction of the collection that is affected by the *hazard* being considered in the *specific risk scenario*. It is thus the fraction of the collection that is both exposed to the *hazard* and susceptible to the *hazard* in that *specific risk scenario*.

### **Fraction of the collection exposed**

(See also numerous terms beginning with *fraction of the collection...*)

**Ed.** : The fraction of the collection that is exposed to the *hazard* being considered in the *specific risk scenario*, whether or not it is susceptible.

### **Fraction of the collection susceptible**

(See also numerous terms beginning with *fraction of the collection...*)

**Ed.** : the fraction of the collection that could be affected if it was exposed to the *hazard* being considered in the *specific risk scenario*. Same as *fraction susceptible*.

### **Fraction susceptible (FS)**

(See also *fraction of the collection susceptible*)

**RW** : (CPRAM term) The part of the collection unit considered vulnerable to a *loss in value* from a *specific risk*. It is determined in light of inherent susceptibility, the anticipated severity of the *specific risk* and, usually, physical location. (**Ed.** : This is a slightly revised definition from the original **RW** 2003 source, suggested by **RW** in 2006.)

### **Fractional loss of value**

(see also *loss of value*)

**Ed.** : The explicit phrase for *loss of value* if one is using only a relative judgment such as ½, 50%, 0.5, of the total value. Often stated simply as *loss of value*.

### **Frequency\***

(see also *probability*)

**AS/NZS 4360:2004** : A measure of the number of occurrences per unit of time.

**Ed.** : Frequency is similar to *probability* or *likelihood*, and all are either expressed either as “per unit time,” or stipulated as a dimensionless fraction for a given time period. It is generally easier to think of frequency of *events* over large numbers of institutions, than to think of the *probability* for each *event*. For example, if the frequency of total museum *loss* to fire was 5 museums over a period of 20 years in a country with 2 000 museums, then the *frequency* or *probability* for each museum is  $5/(20 \times 2000) = 1/8\,000$  per year, or 1/80 in 100 years, etc.

## G

### **Generic risk**

(see *specific risk*)

**RW** : (CPRAM term) Classification of *risks* according to a *type of risk* and an *agent of deterioration*.

### **Geographic information systems (GIS)**

**UN/ISDR** : Analysis that combine relational databases with spatial interpretation and outputs often in form of maps. A more elaborate definition is that of computer programmes for capturing, storing, checking, integrating, analysing and displaying data about the earth that is spatially referenced. Geographical information systems are increasingly being utilised for *hazard* and vulnerability mapping and analysis, as well as for the application of *disaster risk management* measures.

### **Guideline**

(see also *standard*)

A statement of desired, good or best practice.

(source: [www.agimo.gov.au/publications/2005/04/agtifv2/glossary](http://www.agimo.gov.au/publications/2005/04/agtifv2/glossary))

## H

### **Hazard\***

**AS/NZS 4360:2004** : a source of potential harm (ISO/IEC Guide 51, in part)

**MW**: 1. a source of danger 2.a. chance, risk 2.b. a chance event : accident

**Ed. :** See **EEA** for a list of translations into most European languages, e.g., French – danger, Spanish – peligros.

## **HVAC**

**Ed. :** Abbreviation for Heating, Ventilating, and Air-Conditioning. Used to refer to the climate control mechanical systems in a building. Pronounced “H - vac.”

## I

### **Impact**

(See also *consequence*)

**Ed. :** A term often used in the risk literature synonymously with *consequence*. The preferred term in environmental terminology (see **EEA** for the phrase “environmental impact” and useful translations of impact into most European languages.)

### **Incorrect humidity and Incorrect temperature**

**Ed. :** Two of the *agents of deterioration*. One cannot use “relative humidity” or “temperature” as an agent or cause of damage in the way one can use fire, water, pests, contaminants, etc, and thus one cannot meaningfully assess “relative humidity” or “temperature” as *specific risks*. In order to write a meaningful *specific risk scenario*, one needs to specify a particular incorrect humidity or incorrect temperature, such as very high RH (damp), or very low RH, or too large fluctuations, or temperature too high, etc.

### **Internal hazard**

(See also *hazard, external hazard, natural hazard*)

**Ed. :** A *hazard* that originates outside an *organization*.

## L

### **Likelihood\***

(See also *probability, frequency*)

**AS/NZS 4360:2004 :** Used as a general description of *probability* or *frequency*.

NOTE: Can be expressed qualitatively or quantitatively.

NOTE: The English-language version of this Standard uses the word ‘likelihood’ to refer to the chance of something happening, whether defined, measured or estimated objectively or subjectively, or in terms of general descriptors (such as rare, unlikely, likely, almost certain), *frequencies* or (mathematical) probabilities. ISO/IEC Guide 73 uses the word ‘*probability*’, in this general sense, to avoid translation problems of ‘likelihood’ in some non-

English languages that have no direct equivalent. Because ‘probability’ is often interpreted more formally in English as a mathematical term, ‘likelihood’ is used throughout this Standard, with the intent that it should have the same broad interpretation as ‘probability’ as defined in ISO/IEC Guide 73.

## Linguistic scale

(See also *logarithmic scale, numerical scale, quantitative scale, ratio scale, scale, semi-quantitative scale*)

**Ed :** A *scale* based on words, such as high, medium, low, or probable, likely, unlikely, rare, etc. Sometimes called a *verbal scale*. It is a form of *semi-qualitative scale*. (It does not refer to the verbal definitions that may accompany linguistic or *numerical scales*, which are a form of *risk criteria*.) Term not found in glossaries, but widely used in current risk literature. E.g. “we found that a linguistic scale is very useful in the prioritization of many risk events. Linguistic assessment is simple, and it does not require much knowledge on probabilistic risk assessment methods” from <http://www2.ipe.liu.se/rwg/igls/igls2002/Paper140.pdf>. “Although these linguistic terms are somewhat fuzzy, they are meaningful” from Ayub, B.M. (2001) *Elicitation of Expert Opinions for Uncertainty and Risks*, CRC Press, Boca Raton. P.173.

## Logarithmic scale

(See also *linguistic scale, numerical scale, quantitative scale, ratio scale, scale, semi-quantitative scale*)

**Ed. :** A quantitative scale derived from logarithms of the variable. For example, a scale for expressing lost artifacts between 1 and 1000, rather than being divided into 1000 steps, would be divided by multiples of 10, so the measurements of 1,2,3,4 would mean 1, 10,100,1000 artifacts respectively (or 1/1000, 1/100, 1/10, all of a total collection of 1000.)

## Loss\*

(see also *loss of value*)

**AS/NZS 4360:2004 :** Any negative *consequence* or *adverse effect*, financial or otherwise.

## Loss in value (LV)

**RW :** (CPRAM term) : The maximum possible reduction in utility, for known or anticipated uses, of the fraction susceptible. It is evaluated in light of the inherent susceptibility, the physical location and the anticipated severity of the specific risk. It is determined in light of current practices, primary storage hardware and the anticipated severity of the risk. Abbreviated LV.

## Loss of value

(see also *value, fractional loss of value*)

**Ed. :** Equivalent to the term *loss* above, but more explicit. Contains two components in collections risk assessment: defining the *value* which is to be judged, and then estimating how much of that *value* is lost due to a change in state of the artefacts in the collection (such as changes caused by *deterioration*.) Usually it is estimated first as a *fractional loss of value*. In some models, this is then weighted by the different relative value between artefacts, or between collections.

## Lowest observed adverse effect dose (LOAED)

(see also *adverse effect*)

**JT :** The cumulative *dose* of a pollutant (concentration x time) at which the first signs of *adverse effects* are observed (measured) on a material. When a *NOAEL* (*no observed adverse effect level*) cannot be determined with confidence or when it is not feasible, a dose can be determined as the product of concentration of the pollutant and the time required to observe the first signs of an *adverse effect*.

**Ed. :** Can be extended to any *agent of deterioration* that can be characterised by a relation between *dose* and *adverse effect*, such as light damage, where it is a “just noticeable fade”. In the

**ERA/EPA, EEA** glossaries for health and environment, the equivalent term “Lowest observed adverse effect level” is ambiguous, since “level” may refer to dose or to concentration.

## M

### **Magnitude**

**MW** : 1. the importance, quality, or caliber of something 2: a numerical quantitative measure expressed usually as a multiple of a standard unit

### **Magnitude of risk**

(see *risk*)

**IOSH** : The scale of the *risk* based on the *likelihood* of an *event* occurring combined with the severity of the *consequences*.

**RW** : (CPRAM term) The fraction of the total collection unit value expected to be lost in the next century. Abbreviated to MR.

### **Monitor\***

**AS/NZS 4360:2004** : To check, supervise, observe critically or measure the progress of an activity, action or system on a regular basis in order to identify change from the performance level required or expected

## N

### **Natural hazard(s)**

**UN/ISDR** : Natural processes or phenomena occurring in the biosphere that may constitute a damaging *event*. Natural hazards can be classified by origin namely: geological, hydrometeorological or biological. Hazardous *events* can vary in magnitude or intensity, *frequency*, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

### **Numerical scale**

(See also *linguistic scale*, *logarithmic scale*, *quantitative scale*, *ratio scale*, *scale*, *semi-quantitative scale*)

**Ed.** : A scale that uses numbers, such as 1 to 5, or 1 to 10. May be a *quantitative scale*, or it may be a *semi-quantitative scale*. Usually associated with verbal descriptions or definitions attached to each number.

### **No observed adverse effect level (NOAEL)**

**JT** : The highest level of a pollutant that does not produce an *adverse effect* on a specific chemical or physical characteristic of a material in a specific experimental set-up (analytical method, exposure time, temperature, RH, etc.) Some effects may be produced at this level, but they are not considered adverse nor precursors to *adverse effects*.

**Ed.** : see also **ERA/EPA, EEA** glossaries. “Level” there may refer to concentration or to dose.

## O

### Option

**Ed. :** In planning *risk treatments*, one must generate a range of possibilities, or *options*, which are then evaluated and selected during the decision process.

### Organization\*

**AS/NZS 4360:2004 :** Group of people and facilities with an arrangement of responsibilities, authorities and relationships. **EXAMPLE:** Includes company, corporation, firm, enterprise, institution, charity, sole trader, association, or parts or combination thereof.

NOTE 1: The arrangement is generally orderly.

NOTE 2: An organization can be public or private.

NOTE 3: This definition is valid for the purposes of quality management system standards. The term 'organization' is defined differently in ISO/IEC Guide 2. (AS/NZS ISO 9000)

## P

### Preparedness

(See also *emergency preparedness plan*)

**UN/ISDR :** Activities and measures taken in advance to ensure effective response to the *impact of hazards*, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

### Probability\*

(see also *likelihood*)

**AS/NZS 4360:2004 :** A measure of the chance of occurrence expressed as a number between 0 and 1.

NOTE 1: ISO/IEC Guide 73 defines probability as the 'extent to which an event (1.3.4) is likely to occur'

NOTE 2: ISO 3534-1:1993, definition 1.1, gives the mathematical definition of probability as 'a real number in the scale 0 to 1 attached to a random event'. It goes on to note that probability 'can be related to a long-run relative *frequency* of occurrence or to a degree of belief that an *event* will occur. For a high degree of belief, the probability is near 1.'

NOTE 3: '*Frequency*' or '*likelihood*' rather than 'probability' may be used in describing *risk*.

**Ed.:** An expression of probability requires a specified time period, and set of conditions. For example, the *probability* that a small museum will burn down in the next 100 years (which is the time period specified for the term *probability* as used in CPRAM) given its current state of fire prevention and control, may be 0.001 (or expressed as 0.1%, or 1/1 000.) It means that in a region of the world with 10 000 such small museums, with similar fire control conditions, one can expect a frequency of (0.0001 per 100 years x 10 000 museums) = 10 museums per 100 years, or 1 museum every 10 years (on average). In fact, *event* probabilities for rare *events* are typically derived from *frequency* data for large sets of museums. Note that no individual museum can know a priori if they will be the "lucky" or "unlucky" museum, only their probability.

## Q

### Quantify

**MW:** 1 a (1) : to limit by a quantifier (2) : to bind by prefixing a quantifier b : to make explicit the logical quantity of. 2 : to determine, express, or measure the quantity of

### Quantitative scale

(See also *linguistic scale, logarithmic scale, numerical scale, ratio scale, scale, semi-quantitative scale*)

**Ed. :** A *scale* that quantifies a variable in a way that allows meaningful calculations within itself, such as adding and subtracting, or multiplying and dividing by another factor.

## R

### Rate of deterioration

**Ed. :** The amount of *deterioration* or *damage* or *adverse effect* expressed per unit time. Used for *risks* that are continual. For example, colour fading due to current exposures in the museum will cause a rate of fading of one *LOAED* (*lowest observable adverse effect*) every 1.6 years. Rates often change over time, and in a *specific risk scenario* one must clarify what moment or interval is being described.

### Ratio scale

(See also *linguistic scale, logarithmic scale, numerical scale, quantitative scale, scale, semi-quantitative scale*)

**Ed. :** A *quantitative scale* expressed in terms of the ratio between the measured quantity and a reference quantity, usually the maximum possible. Thus it is dimensionless, and usually has a maximum of 1. In *CPRAM*, all variables are expressed on ratio scales with a maximum of 1, and thus the *magnitude of risk* computed is also on a ratio scale, where 1 is total *loss* of the collection.

### Residual risk\*

**AS/NZS 4360:2004 :** *Risk* remaining after implementation of *risk treatment*.

NOTE: See ISO/IEC Guide 51 for safety related applications.

### Risk\*

(see also *specific risk*)

**AS/NZS 4360:2004 :** The chance of something happening that will have an impact on objectives

NOTE 1: A risk is often specified in terms of an event or circumstance and the consequences that may flow from it.

NOTE 2: Risk is measured in terms of a combination of the *consequences* of an *event* and their *likelihood* .

NOTE 3: Risk may have a positive or negative impact.

NOTE 4: See ISO/IEC Guide 51, for issues related to safety.

**Ed. :** Re: NOTE 1, the idea of “circumstance” opens the door to the continual conditions and processes that we must consider in collections, in addition to *risks* from distinct *events*.

Re: NOTE 2, The “measure” of a *risk* is a combination of *consequences* and *likelihood*, equivalent to the term *magnitude of risk*.

Re: NOTE 3, “positive *impact*” will be unusual in normal collection *risk analysis*, but can be part of a larger perspective such as a *risk analysis* of lighting that considers improved visual access, or risk analysis of transit that considers increased viewer access, revenue generation, etc.

See also the entry in Wikipedia under risk for an excellent overview:

<http://en.wikipedia.org/wiki/Risk>

### **Risk analysis\***

**AS/NZS 4360:2004** : Systematic process to understand the nature of and to deduce the level of *risk*

NOTE 1: Provides the basis for *risk evaluation* and decisions about *risk treatment*.

NOTE 2: See ISO/IEC Guide 51 for *risk analysis* in the context of safety.

**Ed.:** In some terminologies, such as that adopted by the Society for Risk Analysis, [www.sra.org](http://www.sra.org), risk analysis “is broadly defined to include *risk assessment*, risk characterization, risk communication, *risk management*, and policy relating to *risk*” (from their home page). We will adopt the more narrow sense of the phrase as defined in AS/NZ 4360:2004, where analysis is a subcomponent of assessment, not *visa versa*.

### **Risk assessment\***

**AS/NZS 4360:2004** : The overall process of *risk identification*, *risk analysis*, and *risk evaluation*.

### **Risk avoidance\***

**AS/NZS 4360:2004** : A decision not to become involved in, or to withdraw from, a *risk* situation.

### **Risk criteria\***

**AS/NZS 4360:2004** : Terms of reference by which the significance of *risk* is assessed.

NOTE: Risk criteria can include associated cost and benefits, legal and statutory requirements, socioeconomic and environmental aspects, the concerns of *stakeholders*, priorities and other inputs to the assessment.

### **Risk evaluation\***

**AS/NZS 4360:2004** : Process of comparing the level of *risk* against *risk criteria*.

NOTE 1: Risk evaluation assists in decisions about *risk treatment*.

NOTE 2: See ISO/IEC Guide 51 for risk evaluation in the context of safety.

### **Risk identification\***

**AS/NZS 4360:2004** : The process of determining what, where, when, why and how something could happen.

### **Risk management\***

**AS/NZS 4360:2004** : The culture, processes and structures that are directed towards realizing potential opportunities whilst managing *adverse effects*.

**RW:** Application of available resources in such a way that overall *risk* is minimized.

### **Risk management process\***

**AS/NZS 4360:2004** : The systematic application of management policies, procedures and practices to the tasks of communicating, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing *risk*.

### **Risk management framework\***

**AS/NZS 4360:2004** : set of elements of an *organization's* management system concerned with managing *risk*.

NOTE 1: Management system elements can include strategic planning, decision making, and other strategies, processes and practices for dealing with *risk*.

NOTE 2: The culture of an *organization* is reflected in its *risk management* system.

### **Risk mitigation**

**Ed.** : An alternate expression for *risk reduction*.

### **Risk reduction\***

(See also *control*)

**AS/NZS 4360:2004** : Actions taken to lessen the *likelihood*, negative *consequences*, or both, associated with a *risk*.

### **Risk retention\***

**AS/NZS 4360:2004** : Acceptance of the burden of *loss*, or benefit of gain, from a particular *risk*.

NOTE 1: Risk retention includes the acceptance of risks that have not been identified.

NOTE 2: The level of *risk* retained may depend on *risk criteria*.

(ISO/IEC Guide 73, in part)

### **Risk sharing\***

**AS/NZS 4360:2004** : Sharing with another party the burden of *loss*, or benefit of gain from a particular *risk*.

NOTE 1: Legal or statutory requirements can limit, prohibit or mandate the sharing of some *risks*.

NOTE 2: Risk sharing can be carried out through insurance or other agreements.

NOTE 3: Risk sharing can create new *risks* or modify an existing *risk*.

### **Risk treatment\***

**AS/NZS 4360:2004** : Process of selection and implementation of measures to modify *risk*.

NOTE 1: The term 'risk treatment' is sometimes used for the measures themselves.

NOTE 2: Risk treatment measures can include avoiding, modifying, sharing or retaining *risk*.

(ISO/IEC Guide 73, in part)

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### **Scale**

(See also *logarithmic scale*, *numerical scale*, *quantitative scale*, *ratio scale*, *semi-quantitative scale*)

**MW** : 1. something graduated especially when used as a measure or rule 2: a graduated series or scheme of rank or order.

### **Scenario**

(See also *specific risk scenario*)

**MW : 3** : a sequence of *events* especially when imagined; especially : an account or synopsis of a possible course of action or *events*.

### **Semi-quantitative scale**

(See also *linguistic scale, logarithmic scale, numerical scale, quantitative scale, ratio scale, scale*)

**Ed.** : A scale that quantifies the variable in a way that allows rank ordering, and possibly an approximation of magnitude, but does not allow meaningful calculations within itself, such as adding and subtracting, or multiplying and dividing by another factor.

### **Sensitivity**

**Ed.** : In *risk assessment*, the ratio between the *deterioration* caused and the intensity of the *agent of deterioration*. For example, the sensitivity of coloured materials to light exposure can be categorised into high, medium, low, and zero sensitivity, and these in turn are measured by determining the *rate of deterioration* at a particular light intensity.

### **Significance**

(See also *significance assessment, statement of significance, value*.)

**AMOL** : The historic, aesthetic, scientific and social *values* that an object or collection has for past, present and future generations.

### **Significance assessment**

(See also *significance, statement of significance*)

**AMOL** : The process of studying and understanding the meanings and *values* of an object or collection, enabling sound and reasoned statements and judgments about the importance of objects and collections, and their meanings for communities.

### **Specific risk**

(see also *generic risk*)

**RW** : (CPRAM term) Undesirable change occurring due to a specific cause. (see *generic risk*)

**Ed.** : In a general sense, used synonymously with *risk*, with the intent simply to emphasise that a particular risk in a particular *scenario* is being discussed. *Specific risks* are often aggregated as part of larger groupings of *risk*, such as within an *agent of deterioration* or a *generic risk* (as in CPRAM).

### **Specific risk scenario**

(See also *scenario*)

**Ed.** : A written description of the *specific risk* that contains all the necessary local information, and references to necessary external information, to make a justifiable *risk evaluation*. "The specific risk scenarios must be described in a way that is meaningful and unambiguous. We assemble a description that: a) points out the *hazard*, b) describes what damage it might do, c) estimates which part of the collection will be affected, d) estimates how soon or how often it will happen, and e) estimates the *loss in value* that would result." From Antomarchi, C., A. Brokerhof, S. Michalski, I. Verger, R. Waller. 2005. Teaching Risk Management of Collections Internationally. *Collections: A Journal for Museum and Archives Professionals*, 2. No. 2, August. pp.117-140.

### **Spread**

**Ed.** : Many *agents of deterioration* begin at a point of entry, and *spread*. For example, the *probability* of a pest infestation *event* in the museum may be 1.6 per 100 years, but if the *spread* is

controlled each time to 0.001 of all collections, the *probability* of exposure for each artifact (if one does not know beforehand where the point of entry may be) is  $1.6 \times 0.001 = 0.0016$  per 100 years.

## Stages

**Ed. :** A universal and easily remembered chronology of the *stages of control of hazards or agents of deterioration*, that aids both *risk analysis* as well as the development of options for *risk treatment*, borrowed from the theory of fire prevention.

1. Avoid (*sources and attractants of the hazard or agent of deterioration*)
2. Block (the *hazard or agent of deterioration*)
3. Detect (the *hazard or agent of deterioration*)
4. Respond (to the *hazard or agent of deterioration*)
5. Recover (from the *hazard or agent of deterioration*)

(see CCI Preservation Framework Poster ([http://www.cci-icc.gc.ca/framework/index\\_e.shtml](http://www.cci-icc.gc.ca/framework/index_e.shtml).)

## Stakeholders\*

**AS/NZS 4360:2004 :** Those people and *organizations* who may affect, be affected by, or perceive themselves to be affected by a decision, activity or *risk*.

NOTE: The term ‘stakeholder’ may also include ‘interested parties’ as defined in AS/NZS ISO 14050 and AS/NZS ISO 14004.

(Based on ISO/IEC Guide 73)

## Standard

(see also *guideline*)

**MW :** 1. something established by authority, custom, or general consent as a model or example ; criterion 2. something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality

## Statement of significance

(See also *significance, significance assessment*)

**AMOL :** A reasoned, readable summary of the meaning, *values* and importance of an object or collection.

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## Threat

(See also *hazard*)

**MW :** 1. an expression of intention to inflict evil, injury, or damage. 2: one that threatens. 3: an indication of something impending

**Ed. :** In this course we will adopt the term *hazard* rather than threat. The term threat is commonly used instead of *hazard* in the security literature, for example in the computer security literature “Threat: A circumstance, *event*, or person with the potential to cause harm to a system in the form of destruction, disclosure, data modification, and/or Denial of Service (DoS)” from the glossary at <http://www.symantec.com/avcenter/refa.html#t>

## Treatment

(See also *risk treatment*)

**Ed. :** Traditionally the term treatment in conservation of collections was reserved for “artefact treatment.” Now, it is also part of the terminology of *risk*, in the phrase *risk treatment*. Thus it cannot be used alone in an unambiguous sense when discussing preservation of collections.

### **Type of risk**

**RW :** (CPRAM term) Classification of *risks* according to the *frequency* at which they occur and the severity of the effect. (Type 1 rare and catastrophic, Type 2 Sporadic and severe, Type 3 Constant and gradual/mild.

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### **Value**

(see also *loss in value, loss of value, significance*)

**MW :** 1. a fair return or equivalent in goods, services, or money for something exchanged 2. the monetary worth of something : marketable price 3. relative worth, utility, or importance