

Appendix A

GLOSSARY

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Flooding and emergency management terms used in the report are taken from the Australian Emergency Management Manual 3 Glossary (EMA 1998).

Asset management definitions have been extracted from the former British Asset Management standard BSI PAS 55:2008. downloaded 13 October 2015 from <https://theiam.org/knowledge/definitions>

Acceptable risk:

That level of risk that is sufficiently low that society is comfortable with it. Society does not generally consider expenditure in further reducing such risks justifiable.

ALARP :

An acronym concerning risk management for 'as low as reasonably practicable'.

Annual exceedance probability (AEP)

The probability of a specified magnitude of a natural event being exceeded in any year. A measure of the likelihood (expressed as a probability) of a flood reaching or exceeding a particular magnitude. A 1% (AEP) flood has a 1% (or 1 in 100) chance of occurring or being exceeded at a location in any year. See also average recurrence interval.

Average annual damage (AAD)

The average damage per year that would occur in a nominated development situation from flooding over a very long period of time. AAD provides a basis for comparing the economic effectiveness of different management measures against floods of all sizes, i.e. their ability to reduce the AAD.

Average recurrence interval (ARI)

The long-term average number of years between the occurrence of a flood as big as or larger than the selected event, eg. floods with a discharge as great as or greater than the 20 year ARI flood event will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event. See also annual exceedance probability.

Asset(s)

Plant, machinery, property, buildings, vehicles and other items that have a distinct value to the organization (PAS 55).

Asset management

Systematic and coordinated activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organizational strategic plan (PAS 55).

Asset management information

Meaningful data relating to assets and asset management (PAS 55).

NOTE Examples of asset management information include asset registers, drawings, contracts, licences, legal, regulatory and statutory documents, policies, standards, guidance notes, technical instructions, procedures, operating criteria, asset performance and condition data, or all asset management records (PAS 55).

Asset management objective(s)

1. specific and measurable outcome or achievement required of asset system(s) in order to implement the asset management policy and asset management strategy; and/or
2. detailed and measurable level of performance or condition required of the assets; and/or
3. specific and measurable outcome or achievement required of the asset management system.

Asset management plan

Document specifying activities and resources, responsibilities and timescales for implementing the asset management strategy and delivering the asset management objectives (PAS 55).

Asset management policy

Principles and mandated requirements derived from, and consistent with, the organizational strategic plan, providing a framework for the development and implementation of the asset management strategy and the setting of the asset management objectives (PAS 55).

Asset management strategy

Long-term optimized approach to management of the assets, derived from, and consistent with, the organizational strategic plan and the asset management policy (PAS 55).

NOTE 1 The asset management strategy converts the objectives of the organizational strategic plan and the

asset management policy into a high-level, long-term action plan for the assets and/or asset system(s), the asset portfolios and/or the asset management system.

NOTE 2 The high-level, long-term action plans for the assets and the asset management objectives are normally the outputs of the asset management strategy. These elements together form the basis for developing more specific and detailed asset management plan(s).

Asset management system

Organization's asset management policy, asset management strategy, asset management objectives, asset management plan(s) and the activities, processes and organizational structures necessary for their development, implementation and continual improvement (PAS 55).

Asset portfolio

Complete range of assets and asset systems owned by an organization (PAS 55).

Asset system

Set of assets that interact and/or are interrelated so as to deliver a required business function or service (PAS 55).

Community

A social group which has a number of things in common, such as shared experience, locality, culture, heritage, language, ethnicity, pastimes, occupation, workplace, etc.

Consequence

The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain. The outcome of an event or situation expressed qualitatively or quantitatively. In the emergency risk management context, consequences are generally described as the effects on persons, society, the environment and the economy.

Continuing flood hazard

The hazard a community is exposed to after floodplain management measures have been put in place. For a town protected by levees, the continuing flood hazard is the consequences of the levees being overtopped. For an area without any floodplain management measures, the continuing flood hazard is simply the existence of flood liability. See also flood hazard.

Counter disaster

A term based on the letters 'CD', for civil defence, invented in Australia to describe the area now known as emergency management.

Design flood

The flood, either observed or synthetic, which is chosen as a basis for the design of a hydraulic structure. See also probable maximum flood.

Design storm

Rainstorm, either observed or synthetic, which is chosen as the basis for the design of a hydraulic structure. Rainfall amount and distribution adopted for a given drainage area, used in determining the design flood.

Disaster

A serious disruption to community life which threatens or causes death or injury in that community and/or damage to property which is beyond the day-to-day capacity of the prescribed statutory authorities and which requires special mobilisation and organisation of resources other than those normally available to those authorities.

Discharge

The rate of flow of water measured in terms of volume per unit time, e.g. cubic metres per second. Discharge is different from the speed or velocity of flow, which is a measure of how fast the water is moving, e.g. metres per second.

Economic risk

That risk which, if realised, would result in dollar losses.

Effective warning time

The time available after receiving advice of an impending flood and before the floodwaters disable damage reduction activities. The effective warning time is typically used to move farm equipment, raise furniture and evacuate people.

Emergency

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response.

Emergency management

A range of measures to manage risks to communities and the environment.

Emergency Management Australia (EMA)

The Commonwealth Government agency within the Department of Defence with the responsibility of reducing the impact of natural and man-made disasters on the Australian community.

Emergency risk management

A systematic process that produces a range of measures which contribute to the well-being of communities and the environment.

Evacuation

The planned relocation of persons from dangerous or potentially dangerous areas to safer areas and eventual return

Exceedance probability

The probability that an event of a given magnitude, or any greater magnitude, will occur. Exceedance probability relates to a given time period, commonly one year. See also annual exceedance probability.

Extreme flood

A rare and usually very severe flood, greater in magnitude than the 1% annual exceedance probability event and possibly approaching the magnitude of a probable maximum flood

Flood

The overflowing by water of the normal confines of a stream or other body of water, or the accumulation of water by drainage over areas which are not normally submerged.

Flood awareness

An appreciation of the likely effects of flooding and a knowledge of the relevant flood warning, response and evacuation procedures. In communities with a high degree of flood awareness, the response to flood warnings is prompt and efficient. In communities with a low degree of flood awareness, flood warnings are liable to be ignored or misunderstood, and residents are often confused about what they should do, when to evacuate, what to take and where it should be taken.

Flood damage

The tangible and intangible costs of flooding. Tangible costs can be quantified in monetary terms, e.g. damage to goods and possessions, loss of income or services during the flood aftermath, etc. Intangible damages represent the increased levels of physical, emotional and psychological illness in flood affected people attributed to a flooding episode and are less easy to quantify in monetary terms.

Flood forecast

Prediction of the stage, discharge, beginning and duration of a flood, especially of the peak discharge at a specific point on a stream.

Flood fringe areas

The remaining area of flood prone land after floodway and flood storage areas have been defined

Flood hazard

The potential loss of life, property and services which can be directly attributed to a flood.

Floodplain

The land which may be covered by water when the river overflows its banks during floods. The extent of a floodplain will normally be greater than the area covered in a 1% flood

Floodplain management measures

The full range of techniques available to reduce flood damage and disruption, as canvassed in floodplain management studies

Flood proofing

A combination of measures incorporated in the design, construction and alteration of individual buildings or structures subject to flooding, to reduce or eliminate flood damages.

Flood risk

The probability of losses occurring due to flooding.

Flood warning

A statement by the Bureau of Meteorology including all or part of the following items for particular catchments:

- a summary of the current meteorological situation and expected developments
- a summary of the rainfall which has occurred or is expected
- river heights at key locations
- the class of flooding that is expected
- river heights.

Flood Warning Gauge Network

The collection of hydrometric gauges that supply data to the Bureau of Meteorology for its flood forecasting role. These can be owned by different agencies that each have their own individual network(s). The gauges usually comprise rainfall and stream water level gauges or recorders(PAS 55).

Freeboard

A factor of safety typically used in relation to the setting of floor levels, levee crest levels, etc. It is usually expressed as a height above a flood planning level and/or the adopted flood mitigation standard. Freeboard provides a factor of safety to compensate for wave action, localised hydraulic behaviour, settlement and other effects such as 'greenhouse' and climate change.

Hazard

A source of potential harm or a situation with a potential to cause loss. A potential or existing condition that may cause harm to people or damage to property or the environment

Hazard mapping

The process of establishing geographically where and to what extent particular phenomena are likely to pose

a threat to people, property, infrastructure, and economic activities. Hazard mapping represents the result of hazard assessment on a map, showing the frequency/probability of occurrences of various magnitudes or durations.

Hydraulics

The study of water flow in a river and across a floodplain and the evaluation of the flow characteristics such as height and velocity. This may include assessments of the effects of obstructions such as bridges and buildings on water flow, and changes in the slope of the water surface during the flood.

Hydrograph

A graph which shows how the discharge or stage/flood level at any particular location changes with time during a flood.

Hydrographer

A person who installs and maintains rainfall and stream water level gauges, and then measures, records and manages that data.

Hydrology

The study of the rainfall runoff process as it relates to the development of flooding and the derivation of hydrographs at different locations in a river system for given floods.

Hydrologist

A person who studies hydrology, including developing and using hydrologic computer models.

Life cycle

Time interval that commences with the identification of the need for an asset and terminates with the decommissioning of the asset or any associated liabilities (PAS 55).

Lifelines

The public facilities and systems that provide basic life support services such as water, energy, sanitation, communications and transportation.

Systems or networks that provide services on which the well-being of the community depends.

Likelihood

A qualitative description of probability and frequency.

Low hazard

In relation to flooding, should it be necessary, people and their possessions could be evacuated by trucks; able-bodied adults would have little difficulty in wading to safety.

Major flooding

Flooding where appreciable urban areas are flooded and/or extensive rural areas are flooded. Properties, villages and towns can be isolated.

Minor flooding

Flooding that causes inconvenience such as closing of minor roads and the submergence of low level bridges. The lower limit of this class of flooding on the reference gauge is the initial flood level at which landholders and townspeople begin to be flooded.

Moderate flooding

Flooding where low-lying areas are inundated requiring removal of stock and/or evacuation of some houses. Main traffic bridges may be covered

Non-structural flood mitigation

System for reduction of the effects of floods using non-structural means, eg. land-use planning, advance warning systems, flood insurance.

Peak discharge

The maximum discharge occurring during a flood event

Perceived risk

The level of risk that is thought to exist by an individual or group of individuals.

PMF

See probable maximum flood.

PPRR

An abbreviation for prevention, preparedness, response and recovery.

Preliminary flood warning

A warning issued by the Bureau of Meteorology when flood-producing rains are occurring or are expected over particular river catchments. The warning is normally of a general nature and is issued to the public. It includes advice on the current meteorological situation and expected developments, together with an assessment of the class of flooding that can be expected in a particular river basin.

Preparedness

Arrangements to ensure that, should an emergency occur, all those resources and services which are needed to cope with the effects can be efficiently mobilised and deployed.

Measures to ensure that, should an emergency occur, communities, resources and services are capable of coping with the effects.

Prevention

Regulatory and physical measures to ensure that emergencies are prevented, or their effects mitigated.

Probability

The likelihood of a specific outcome, measured by the ratio of specific outcomes to the total number of possible outcomes. Probability is expressed as a number between 0 and 1, with 0 indicating an impossible outcome and 1 indicating an outcome is certain.

Probable maximum flood (PMF)

The flood resulting from the probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood-producing catchment conditions that can be realistically expected in the prevailing meteorological conditions.

Public awareness

The process of informing the community as to the nature of the hazard and actions needed to save lives and property prior to and in the event of disaster

Recovery

The coordinated process of supporting emergency-affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical wellbeing

Recurrence interval

The average time interval at which events equal to or greater than a certain magnitude would recur if existing natural regimes continued without change. Recurrence interval is a function of exceedance probability.

Relief

The provision of immediate shelter, life support and human needs of persons affected by, or responding to, an emergency. It includes the establishment, management and provision of services to emergency relief centres.

Residual risk

The remaining level of risk after risk treatment measures have been taken.

Resilience

A measure of how quickly a system recovers from failures

Response

Actions taken in anticipation of, during, and immediately after an emergency to ensure that its effects are minimised, and that people affected are given immediate relief and support.

Risk

(EMA Glossary) A concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, communities and the environment.

- The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.
- A measure of harm, taking into account the consequences of an event and its likelihood. For example, it may be expressed as the likelihood of death to an exposed individual over a given period.
- Expected losses (of lives, persons injured, property damaged, and economic activity disrupted) due to a particular hazard for a given area and reference period. Based on mathematical calculations, risk is the product of hazard and vulnerability.

Risk

(ISO31000:2009) *the effect of uncertainty on objectives*

Risk assessment

The process used to determine risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria

Risk management

The systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring risk

Risk reduction

A selective application of appropriate techniques and management principles to reduce either likelihood of an occurrence or its consequences, or both.

Risk retention

Intentionally or unintentionally retaining the responsibility for loss, or financial burden of loss within the organisation.

Risk transfer

Shifting the responsibility or burden for loss to another party through legislation, contract, insurance or other means. Risk transfer can also refer to shifting a physical risk or part thereof elsewhere.

Risk treatment

Selection and implementation of appropriate options for dealing with risk

Settlement

A place where people live.

Societal risk

The risk of a number of fatalities occurring. The societal risk concept is based on the premise that society is more concerned with incidents which kill a larger number of people than incidents which kill fewer numbers.

Standard operating procedure (SOP)

A set of directions detailing what actions could be taken, as well as how, when, by whom and why, for specific events or tasks.

Structural flood mitigation

Structural system for reduction of the effects of floods using physical solutions, including reservoirs, levees, dredging, diversions, and flood proofing.

Sustainable development

Development in the present that does not destroy the resources needed for future development.

Threat

See hazard

Tolerable risk

A risk which the exposed people are expected to bear without undue concern, once all reasonable practicable reduction measures have been adopted. 'Tolerable' is sometimes used interchangeably with 'acceptable', but its more negative connotations make it more appropriate for risks which are reluctantly accepted.

Vulnerability

The degree of susceptibility and resilience of the community and environment to hazards

Vulnerable groups

Categories of displaced persons with special needs, variously defined to include: unaccompanied minors, the elderly, the mentally and physically disabled, victims of physical abuse or violence and pregnant, lactating or single women