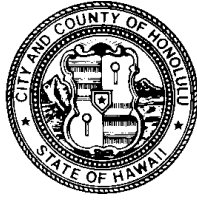


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18. Glossary

Glossary

Adverse Consequences - Negative impacts that may result from failure. The primary concerns are loss of human life, economic loss (including property damage), lifeline disruption, and environmental impact.

Annualized Benefits and Costs - The value of benefits and costs based on the probability the benefit or cost will be realized in a given year.

Assets - Lives, buildings, utilities and transportation systems, cultural, social. . .

Benefit - Any increase in utility or well-being to an individual, group or society associated with an action or choice. Bounded from below by price. It is synonymous with value in economic theory. Benefits and costs are complementary - a cost is a negative benefit, since costs decrease well-being and benefits increase well-being.

Benefit/Cost Analysis - A systematic quantitative method of assessing the desirability of government projects or policies when it is important to take a long view of future effects and abroad view of possible side-effects. Benefit/cost analysis is recommended as the technique to use in a formal economic analysis of government programs or projects. (From OMB A-94)

Consequences - Damages (full or partial), injuries, and losses of life, property, environment, and business that can be quantified by some unit of measure, often in economic or financial terms.

Cost - Any reduction in utility or well-being to an individual, group or society associated with an action or choice. Generally it is not the same as price, which bounds cost from above.

Cost Effective - The least cost alternative means for achieving the same stream of benefits or a given objective. Cost-effectiveness analysis is less comprehensive than benefit/cost analysis, but can be appropriate when the benefits from competing alternatives are the same or where a policy decision has been made that the benefits must be provided. It can be used to compare programs with identical costs but differing benefits. FEMA guidance has defined cost-effective as the benefits equal to or exceeding the costs. (From OMB A-94)

Damage - Damage refers to physical destruction measured by physical indicators such as the number of deaths and injuries or the number of buildings destroyed.

Disaster - The impact of a natural event upon a vulnerable community resulting in disruption, damage, and casualties that cannot be relieved by the unaided capacity of locally-mobilized resources.

Disaster Management - The efficient use of resources to coordinate the processes of relief, recovery, and reconstruction.

Disaster Response - Activities occurring in the aftermath of a disaster which assist disaster victims and which rehabilitate or reconstruct damaged infrastructure.

Discount Rate - Discount rate is the interest rate used in calculating the present value of expected yearly benefits and costs. Net present value represents the discounted value of future benefits and costs. Discounting reflects the time value of money and the view that benefits and costs are worth more when they are experienced sooner. OMB determines the discount rate for analysis of federally funded projects.

Empirical - Relying on experience or observation, capable of being verified or disproved by observation or experiment.

Exposure - The number, types, qualities, and monetary values of various types of property or infrastructure and life that may be subject to an undesirable or injurious hazard event.

GIS - Geographic Information System. A computerized mapping system and tool that enables the visual display of geography to various scales linked with information, often from databases. For the purposes of hazard mitigation, the system allows planners to take information about a specific area, to overlay a hazard to see areas that might be impacted, and to develop actions to minimize the impacts.

Hazard - An event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harm or loss.

Hazard Mapping - The process of establishing geographically where certain phenomena are likely to pose a threat to human settlements.

Hazard Potential - Possible adverse consequences.

Hazard Potential Classification - A system that categorizes dams according to the degree of adverse incremental consequences of a failure or mis-operation of a dam. The hazard potential classification does not reflect in any way on the current condition of the dam (e.g., safety, structural integrity, flood routing capacity.)

Impacts - The impacts of a disaster include market-based and non market-based effects. Market-based impacts include destruction of property and a reduction in income and sales. Non-market effects include environmental consequences and psychological effects suffered by persons involved in a disaster.

Incremental Consequences - Under the same conditions (e.g. flood, earthquake, or other event), the difference in impacts that would occur due to failure or mis-operation of the dam over those that would have occurred without failure or mis-operation of the dam and appurtenances.

Loss - Any reduction in value, or well-being to individuals, groups or society. A loss is a cost. Losses avoided are benefits.

Direct Losses - Losses linked directly to a hazard event including all damages and employment losses due directly to the closure of damaged facilities.

Indirect Losses - All losses other than direct losses. Indirect losses include economic losses due to dislocations in undamaged factories or commercial ventures, banking, and insurance as well as non financial losses such as loss of historical resources, pain, and suffering.

Maximum Foreseeable Loss - An estimate of losses assuming the worst combination damage and disruption to a business. This estimate allows consideration of the worst possible consequences.

Mitigation - All actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Mitigation activities contrast with short-term risk-reducing actions such as preparedness, response and recovery measures and risk spreading measures such as insurance.

Multiplier - The ratio between the direct effect on output or employment and the full effect including the effects of second order rounds or spending. (From OMB A-94)

Natural Hazard - The probability of occurrence of a potentially damaging natural phenomenon within a specific period of time. Some of these include tropical cyclones, hurricanes, drought, earthquakes, floods, landslides, tsunamis, and volcanic eruptions.

Net Present Value - The discounted monetized value of expected net benefits (i.e., benefits minus costs). This is the standard criterion for deciding whether a government program can be justified on economic principles. Net present value is computed by assigning monetary values to benefits and costs, discounting future benefits and costs using an appropriate discount rate, and subtracting the sum total of discounted costs from the sum total of discounted benefits. (From OMB A-94)

Opportunity Cost - The value of alternatives foregone to achieve the mitigation activity. It can be thought of as the value of the good or service in its best alternative use.

Present Value - The value of a stream of benefits or costs when discounted back to the present time.

Probable - Likely to occur; reasonably expected; realistic.

Probability and Frequency - A measure of how often an event is likely to occur. Frequency can be expressed as the average time between occurrences or exceedances (non-exceedances) of an event or the percent chance or probability of the event occurring or being exceeded (not exceeded) in a given year or a longer time period.

Process Mitigation - Indirect mitigation activities that lead to policies, practices and projects that reduce risk. They include efforts to assess hazards, vulnerability and risk; conduct planning to identify projects, policies and practices and set priorities; educate decision-makers and build constituencies and political will; and to facilitate the selection, design, funding and construction of projects.

Project Mitigation - Project mitigation includes measures to avoid or reduce damage resulting from hazard events. They include projects to elevate, acquire and/or relocate buildings, lifelines and structures threatened by floods, strengthen buildings to resist earthquake or wind forces, and to improve drainage and land conditions.

Rehabilitation - Action undertaken in the weeks or months following a disaster to restore basic services which enable life in the region to return to normality. However, it should be recognized that normality also gave rise to a disaster. Therefore, the term can be equated with vulnerability, and there is thus a need to advance from the status quo towards post-disaster improvements.

Relief - Attention to immediate and basic needs of disaster survivors. These needs include food, clothing, shelter, and medical or emotional care. In the case of fast-impact disasters such as floods, earthquakes or cyclones, this process is directed at saving lives and alleviating further suffering.

Risk - Potential losses associated with a hazard, defined in terms of expected probability and frequency, exposure, and consequences. Risk is therefore the product of specific risk and elements at risk; the convolution of the probability hazard, vulnerability (or fragility), and asset exposure.

Risk Assessment - A process or method for evaluating risk associated with a specific hazard and defined in terms of probability and frequency of occurrence, magnitude and severity, exposure, and consequences.

Shadow Prices - If a market in a good is not perfectly competitive, then market prices will not reflect the opportunity costs of that good. The price of the good, as corrected to equal its opportunity cost, is termed its shadow price.

Vulnerability - The susceptibility to physical injury, harm, damage, or economic loss.

List of Acronyms

COE	United States Army Corps of Engineers
CWRM	State Commission on Water Resource Management
DBEDT	Dept. of Business/Economic Development and Tourism, State of Hawaii
DLNR	Dept. of Land and Natural Resources, State of Hawaii
DOFAW	Division of Forestry and Wildlife, Dept. of Land and Natural Resources, State of Hawaii
DOH	Dept. of Health
DOT	Hawaii Dept. of Transportation
DPP	Dept. of Permitting and Planning, City & County of Honolulu
ESRI	Environmental Systems Research Institute
EWC	East-West Center
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information Systems
HCZM	Hawaii Coastal Zone Management Program
HIGICC	Hawaii Geographic Information Coordinating Council
HVO	USGS Hawaii Volcano Observatory
JTWC	Joint Typhoon Warning Center
MHPCC	Maui High Performance Computer Center
MSAC	Multi-Hazard Science Advisory Committee
NOAA	National Oceanic and Atmospheric Administration, Dept. of Commerce, United States Federal Government
NWS	National Weather Service
OP	Office of Planning (DBEDT)
PAO	Pacific Area Office (FEMA)
PMEL	Pacific Marine Environmental Laboratory
PDC	Pacific Disaster Center
PSC	Pacific Service Center
RCUH	Research Corporation of the University of Hawaii
SCD	Hawaii State Civil Defense
SOEST	School of Ocean and Earth Sciences and Technology – University of Hawaii
SSRI	Social Sciences Research Institute
TNCH	The Nature Conservancy of Hawaii
UH	University of Hawaii
UHM	University of Hawaii, Manoa
USGS	United States Geological Survey, Dept. of Interior