



SMARTeST - Glossary

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SMARTeST - Glossary

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Executive Summary

The SMARTeST FP7 project has the overall aim to improve the Route to Market of FRe technologies, most especially innovative technology. This will be achieved by reducing deficiencies and obstacles in the implementation of Flood Resilience Measures facilitating the design of more holistic flood defense systems, and supporting the implementation of the new EU flood risk management policy of “Living with Floods”.

This glossary integrates the FLOODsite Glossary, The Flood Mapping Manual Editorial Group Glossary, The Urban Flood Management Glossary and the SMARTeST Project Glossary. The purpose of this glossary is to provide SMARTeST with linguistic clarity, unambiguity and conformity of meaning. In effect, it extends the FLOODsite Glossary.

Where these glossaries offer differing descriptions, the description in the FLOODsite glossary is accepted unless an alternative description is considered more appropriate for the SMARTeST project.

Terms in this glossary are, in general, described within the context of flood risk management.

FLOODsite glossary (Paul Samuels and Ben Gouldby 2009 Language of Risk – Project Definitions (Second Edition) www.floodsite.net) is included in full with the exception of terms whose description relates only to specific FLOODsite tasks.

Flood Mapping Manual Editorial Group Glossary (FMMEP) (Pasche, E. 2007 Flood Mapping Manual Editorial Group Glossary, Hamburg University of Technology, TUHH) is included in full. This glossary makes extensive use of terms used by the 2006 FLOWS project team and of terms in the FLOODsite glossary.

The Urban Flood Management Glossary (C.Zevenbergen, A.Cashman, N.Evelpidou, E.Pasche, S.Garvin and R.Ashley 2011 Urban Flood Management, Taylor and Francis). This glossary also makes extensive use of terms in the FLOODsite Glossary. Terms in this glossary over and above those from the above mentioned glossaries are included here.

The SMARTeST glossary comprises terms for which project members requested clarification and which are not included in the FLOODsite Glossary. It uses descriptions provided by project partners and also makes extensive use of the Oxford Dictionary of English (second Edition, Revised, 2005, Oxford University Press) and the world wide web.

**The Flood Risk
Management
Glossary**

incorporating

FLOODsite Glossary (FLOODsite)

Flood Mapping Manual Editorial Group Glossary (FMMEP)

Urban Flood Management Glossary (UFM)

SMARTeST Project Glossary (SMARTeST)

Term	Definition	Source
Accuracy	closeness to reality.	FLOODsite
Acceptability (of and FRe measure)	An acceptable FRe technology/system is one which is satisfactory and can be tolerated by all concerned with it. (OED and NL)	SMARTeST
Adaptation	A process of transformation that stresses the positive result of an interaction or a behavioural transformation between the individual and his environment. (Marchand/NL)	SMARTeST
Adaptive Capacity	The ability to plan, prepare for, facilitate, and implement adaptation options	FLOODsite
Aims	The objectives of groups/individuals/organisations involved with a project. The aims are taken to include ethical and aesthetic considerations.	FLOODsite
Appropriation	Appropriation is the act of taking possession of or assigning purpose to properties or ideas- ensuring that (an FRe technology or system) is suitable for one's own use. (OED/www/ NL)	SMARTeST
Assessment	The action of establishing the nature, ability or quality of someone or something (OED)	SMARTeST
Asset, infrastructure	An infrastructure asset is any long-lived resource that is operated as a system or network, such as a sewer collection and water supply system.	UFM
Assistance	The action of helping and/or providing help (OED +NL)	SMARTeST
Attenuation (flood peak)	lowering a flood peak (and lengthening its base).	FLOODsite
Avoidance	A measure to keep (floods) away and/or to prevent (flooding) from happening. (OED + NL)	SMARTeST
Awareness (of risk)	The awareness of risk means for an individual to realise and to accept to be vulnerable to a major danger associated with a hazard. (Marchand).	SMARTeST
Basin (river) (see catchment area)	the area from which water runs off to a given river.	FLOODsite
Beach overwash	Beach overwash can be defined as the flow of water and sediment over the crest of a beach that does not directly return to the water body from which it originated.	FLOODsite
Behaviour	The behaviour is the actual behavior observed of an individual. (Marchand)	SMARTeST
Bias	The disposition to distort the significance of the various pieces of information that have to be used.	FLOODsite
Bioretention Area	Vegetated areas designed to collect and treat water before discharge via a piped system or infiltration to the ground	FMMEP
Catchment area	the area from which water runs off to a river	FLOODsite

Capacity	“A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability.” (UN/ISDR, 2004)	UFM
Capacity, adaptive	The ability of a society to adjust to uncertain future developments and catastrophic, not frequently occurring disturbances such as extreme floods. Adaptive capacity refers to a longer timeframe than coping capacity.	UFM
Capacity building	Process that aims at creating a favourable context to develop and implement FRe technologies and associated measures. (Marchand)	SMARTeST
Capacity building of stakeholders	resilience strategy devoted to promote the importance of the concept of “living with floods rather than flood fighting” on the microscale level, focusing on individual flood mitigation measures and increasing public awareness of flood hazard.	FMMEP
Capacity, coping	The ability of a society to reduce or absorb damage in case of a disturbance that exceeds the damage threshold.	UFM
Catastrophe	A disruption of society that may cause a total breakdown in day-to-day functioning. One aspect of catastrophes, is that most community functions disappear; there is no immediate leadership, hospitals may be damaged or destroyed, and the damage may be so great and so extensive that survivors have nowhere to turn for help (Quarantelli, 1994). In disaster situations, it is not unusual for survivors to seek help from friends and neighbors, but this cannot happen in catastrophes. In a disaster, society continues to operate and it is common to see scheduled events continue. . .” (Tobin and Montz, 1997; quoted in Blanchard, 2005)	UFM
Catchment area	The area from which water runs off to a river, sewer or other draining entity. Instead of catchment, the term watershed is often used in the United States.	UFM
Certification	Confirmation of certain characteristics and quality of a product. This confirmation is often, but not always, provided by some form of external review or assessment (www/NL).	SMARTeST
Characterisation	The process of expressing the observed/predicted behaviour of a system and it's components for optimal use in decision making.	FLOODsite
Coastal Dune	A coastal dune is a ridge or mound of loose wind-blown material, usually sand, located on the landward side of the beach.	FLOODsite
Coastal Floods	Inundation of land areas adjacent to the coast by any type of waters and any cause (NL)	SMARTeST
Coating	A thin layer or covering of something (OED)	SMARTeST

Cognition	The conscious or unconscious process of deriving meaning from sensory data. So perceived risk. might be more correctly termed cognated risk	FLOODSite
Conditional probability	The likelihood of some event given the prior occurrence of some other event.	FLOODsite
Confidence interval	A measure of the degree of (un)certainly of an estimate. Usually presented as a percentage. For example, a confidence level of 95% applied to an upper and lower bound of an estimate indicates there is a 95% chance the estimate lies between the specified bounds. Confidence limits can be calculated for some forms of uncertainty (see knowledge uncertainty), or estimated by an expert (see judgement).	FLOODsite
Consequence (of risk)	The direct effect of an event, incident or accident. It is expressed as a health effect (e.g., death, injury, exposure), property loss, environmental effect, evacuation, or quantity spilled. (FMMEP)	SMARTeST
Contamination assessment	analysis of pollution regarding sediment, soil and plant material	FMMEP
Conveyance systems	A facility for transporting water	SMARTeST
Coping capacity	The means by which people or organisations use available resources and abilities to face adverse consequences that could lead to a disaster.	FLOODsite
Correlation	Between two random variables, the correlation is a measure of the extent to which a change in one tends to correspond to a change in the other. One measure of linear dependence is the correlation coefficient p . If variables are independent random variables then $p = 0$. Values of +1 and -1 correspond to full positive and negative dependence respectively. Note: the existence of some correlation need not imply that the link is one of cause and effect.	FLOODsite
Cost Benefit Analysis	The process of assesses the relationship between the cost of an undertaking and value of the resulting benefit (NL +OED)	SMARTeST
Cost Effectiveness Analysis	Analysis of at least two or more alternatives in order to identify the alternative with the highest input/output ratio; The aim is to either achieve the maximum output, or the result with the minimum input or costs.	FMMEP
Critical element	A system element, the failure of which will lead to the failure of the system.	FLOODsite
Damage	A description of the value of social, economic and ecological impacts (harm) caused by a flood	FMMEP
Damage area	Affected area in which a natural event has caused injury to people or damage to property.	FMMEP
Damage potential	A description of the value of social, economic and ecological impacts (harm) that would be caused in the event of a flood.	FLOODsite
Damage prevention	All measures taken in order to avoid damage.	FMMEP

Danger	Danger is an event or a situation which could have negative consequences or damage to individual, social groups and environment. (Marchand).	SMARTeST
Decision uncertainty	Decision Support Systems (DSSs) are designed to make results available in such a way that decision makers, and other stakeholders that want to influence the decision-making process, have equal access to all relevant information. These are computer-based tools that support individual decision-makers or groups in exploring different solutions for problems. They allow strategic alternatives for flood risk or flood event management to be defined and can rapidly calculate the effects of these alternatives for assessment purposes. DSSs use databases, models and a graphical user interface to provide results in various graphical ways.	FLOODsite
Decision Support Systems	Complex decision support systems (DSS) facilitate the decision-makers to compare different options. A set of mathematical methods allows to balance different alternatives on the basis of certain criteria and valuations. Often a conglomeration of various methods is applied to assist factual and impartial decisions. To solve spatial issues DSS often are combined with GIS applications (Spatial Decision Support Systems, SDSS). The Geo Information Systems (GIS) accomplishes the data management and enlarge a DSS by spatial analyses. An additional advantage is that input data are easier manageable and results can be mapped. The field of application is diversified. DSS are for example applied in flood mitigation planning.	FMMEP
Depth maps	Maps that present the calculated water depth in flooded area with a given return period. As for instance; 10 years floods, 50 years floods, 100 years floods etc.	FMMEP
Defence System	Two or more defences acting to achieve common goals (e.g. maintaining flood protection to a floodplain area/community).	FLOODsite
Dependence	The extent to which one variable depends on another variable. Dependence affects the likelihood of two or more thresholds being exceeded simultaneously. When it is not known whether dependence exists between two variables or parameters, guidance on the importance of any assumption can be provided by assessing the fully dependent and independent cases (see also correlation).	FLOODsite
Design criteria	A set of standards agreed by the developer, planners and regulators that the proposed system should satisfy. (Balmforth et al., 2006 via Spekkers)	SMARTeST
Design event	Hypothetical event defined as the basis for the design of structures and/or activities to mitigate / eliminate the event's potential for injury or damage.	FMMEP

Design standard	A performance indicator that is specific to the engineering of a particular defence to meet a particular objective under a given loading condition. Note: the design standard will vary with load, for example there may be different performance requirements under different loading conditions.	FLOODsite
Design system	Two or more defences acting to achieve common goals (e.g. maintaining flood protection to a floodplain area/ community).	FLOODsite
Design objective	The objective (put forward by a stakeholder), describing the desired performance of an intervention, once implemented.	FLOODsite
Detention Basins	Depressions used to capture storm water.	FMMEP
Deterministic process/method	A method or process that adopts precise, single-values for all variables and input values, giving a single value output.	FLOODsite
Dialog	formal talks between opposing countries, political groups etc.	FMMEP
Disaster	In case of an extreme event we are talking about a Disaster (= catastrophe). A disaster is a sudden and unexpected event which disrupt the functioning of a community or a society and causes widespread human, material, economic or environmental losses. Assistance from outside may be needed as the ability of the affected community or society to cope with may be exceeded.	FMMEP
Direct, tangible damage	Direct damages are those where the loss is due to direct contact with flood water, such as damage to buildings and their contents. These are tangible when they can be easily specified in monetary terms.	FLOODsite
Discharge (stream, river)	as measured by volume per unit of time.	FLOODsite
Discounted Cash Flow	Discounted cash flow is a mathematical technique applied to financial and economic cost-benefit analysis which enables the comparison of costs and benefits occurring at different time by calculating a present value for each.	FMMEP
Dissemination	Dissemination of project information might mean telling a wider audience about a project and its results. This can enable organisations to learn from others' experience and good practice. In connection with flood management dissemination activities aim for a systematic distribution of flood related information or knowledge through a variety of ways to potential beneficiaries. The purpose of a dissemination activity is to assure that information and/or knowledge supports the process of decision making or taking specific actions. Above all, information and/or knowledge has to be available to those who can most benefit from it. In this spirit dissemination goes well beyond simply making research available through the traditional types of journal publication and academic conference presentations. It involves a process of extracting the main messages or key implications derived from research results and communicating them to targeted	FMMEP

	groups of decision makers and other stakeholders in a way that encourages them to factor the research implications into their work. Face-to-face communication is encouraged whenever possible.	
Dissemination strategy	A Dissemination Strategy is a planned approach to informing a wider audience about the results of a project. Dissemination techniques are for example the holding of Focus Groups or so called “Interactive Learning Groups” as a type of face-to-face communication or the setup of websites to transmit information to intended audience and target groups.	FMMEP
Dry proofing	Water is prevented from entering the property by sealing the building or by using flood alleviation products (Garvin for Era-Net Crue)	SMARTeST
Economic Analysis	Economic analysis aims for the comparison, with money as the index, of those costs and benefits to the wider economy that can be reasonably quantified, including all social costs and benefits of a project.	FMMEP
Efficiency	In everyday language, the ratio of outputs to inputs; in economics, optimality.	FLOODsite
Element	A component part of a system	FLOODsite
Element life	The period of time over which a certain element will provide sufficient strength to the structure with or without maintenance.	FLOODsite
Elevating the structure	Protection measure that ensures safety to buildings by raising the floor above the design flood level, a kind of flood proofing measures	FMMEP
Emergency management	The ensemble of the activities covering emergency planning, emergency control and post-event assessment.	FLOODsite
Entrapment Effect	describes how large and technological systems (for example a city) become embedded in decision making pathways which, though perhaps not irreversible are not simple to modify. It can often be the case that such decision pathways run counter-productive to the needs of the system. Entrapment is characterised by the following two concepts; enticement and restraint.	FMMEP
Enticement	Enticement is the process whereby society would arrive at a particular methodology to resolve a technical problem. Enticement is initiated by a driver or a need ‘to do’ something, for example response to a natural disaster. The response from society may be to apply available knowledge, experience and empirical data through a process of ‘cost benefit analysis’ or similar to arrive at the most appropriate scheme. The restraint in this sense describes how the society is now trapped into making this type of decision for this type of driver. Restraint is comprised of an inertia created by the complex involvement of stakeholders involved in the process, and includes, but is not limited to, the predisposition towards continuation, the magnitude of switching costs, organisational power and advantage, the principle of non-intervention and evasion of retreat.	FMMEP
Environmental	The ability to live in a changing environment and the	SMARTeST

competence	ability to adapt and develop strategies to cope with the environment presented (Marchand, adapted by NL).	
Epistemology	A theory of what we can know and why or how we can know it.	FLOODsite
Ergonomics	The study of human performance as a function of the difficulty of the task and environmental conditions.	FLOODsite
Error	Mistaken calculations or measurements with quantifiable and predictable differences.	FLOODsite
Evacuation scheme	plan for the combination of actions needed for evacuation (warning, communication, transport etc.).	FLOODsite
Event (in the context of flooding)	The conditions which may lead to flooding. An event is, for example, the occurrence in Source terms of one or more variables such as a particular wave height threshold being exceeded at the same time a specific sea level, or in Receptor terms a particular flood depth. When defining an event it can be important to define the spatial extent and the associated duration.	FLOODsite
Event documentation	Description of a recent event related to its quantity and quality.	FMMEP
Expectation	Expectation, or “expected value” of a variable, refers to the mean value the variable takes. For example, in a 100 year period, a 1 in 100 year event is expected to be equalled or exceeded once.	FLOODsite
Expected annual frequency	Expected number of occurrences per year (reciprocal of the return period of a given event).	FLOODsite
Expected loss	Extend of damage to be expected for an event or a given period of time on basis of a particular / given scenario. (BUWAL, Risiko Analyse, 1999).	FMMEP
Experiential Learning Circle	The experiential learning circle is based on David A. Kolb ideas and theory on experiential learning, motivated by his interests in exploring the processes associated with making sense of concrete experiences - and the different styles of learning that may be involved. He created a model out of four elements: concrete experience, observation and reflection, the formation of abstract concepts and testing in new situations.	FMMEP
Expert panel	a group of experts from different disciplines who have been brought together to discuss a particular subject in order to solve a problem or suggest ideas.	FMMEP
Exposure	Quantification of the receptors that may be influenced by a hazard (flood), for example, number of people and their demographics, number and type of properties etc.	FLOODsite
Extrapolation	The inference of unknown data from known data, for instance future data from past data, by analysing trends and making assumptions.	FLOODsite
Extreme event	An event (within the context of flood risk) is an occurrence of one or more variables that may lead to flooding. These variables include heavy rainfall, river discharges and storm surges and are often described as ‘sources’ of flood risk or flood hazards and can also be referred to as ‘loads’ on natural or man-made structures.	FLOODsite
Failure	Inability to achieve a defined performance threshold	FLOODsite

	(response given loading). "Catastrophic" failure describes the situation where the consequences are immediate and severe, whereas "prognostic" failure describes the situation where the consequences only grow to a significant level when additional loading has been applied and/or time has elapsed.	
Failure mode	Description of one of any number of ways in which a defence or system may fail to meet a particular performance indicator.	FLOODsite
Fault tree	A fault tree is a common method to analyse failure probabilities of complex systems. The fault tree is a tool for linking various failure mechanisms leading to an expression of the probability of system failure.	FLOODsite
Filters	Engineered sand filters designed to remove pollutants from runoff	FMMEP
Filter Drains	Linear drains consisting of trenches filled with a permeable material, often with a perforated pipe in the base of the trench to assist drainage, to store and conduct water; they may also permit infiltration	FMMEP
Filter Strips	Vegetated areas of gently sloping ground designed to drain water evenly off impermeable areas and to filter out silt and other particulates	FMMEP
Flash flood	A flash flood is a flood that occurs in a short period of time after a high intensity rainfall event or a sudden massive snow melt. A sudden increase in the level and velocity of the water body is often characteristic of these events. Rising water levels in the river network can reach its peak within minutes to a few hours of the onset of the flood event, leaving an extremely short time for warning. They are localised phenomena that occur in watersheds with maximum response times of a few hours. Therefore, the majority of flash floods occur in streams and small river basins that have a catchment area of a few hundred square kilometres or less.	FLOODsite
Flash flood guidance (FFG)	A methodology for issuing flood warnings developed in the US which relies on rainfall forecasts and past rainfall to determine catchment condition and does not require runoff modelling. It is not "Guidance" in the meaning of a physical document of accepted good practice on a particular topic.	FLOODsite
Flexibility	Within the context of assessing the sustainability of flood risk systems, flexibility is the ease with which a flood risk system (or strategic alternative) can adapt to changing circumstances without future regrets about decisions and measures implemented.	FLOODsite
Flood	A temporary covering of land by water outside its normal confines	FLOODsite
Flood control (measure)	A structural intervention to limit flooding and so an example of a risk management measure.	FMMEP
Flood damage	damage to receptors (buildings, infrastructure, goods), production and intangibles (life, cultural and ecological assets) caused by a flood.	FLOODsite
Flood defence structure	Structure designed to provide protection against floods.	FLOWSS

	Synonymous to: Flood protection structure, Flood control structure, Flood protection works, Flood control works, Flood mitigation works.	
Flood forecasting system	A system designed to forecast flood levels before they occur.	FLOODsite
Flood hazard	Flooding that has the potential to result in harm; the description of flood hazard may include the physical characteristics of a flood at a given point; including depth, duration and velocity. Sometimes flood hazard also includes an assessment of the probability of occurrence, but this is excluded from the definition used here.	FLOODsite
Flood hazard map	map with the predicted or documented extent of flooding, with or without an indication of the flood probability	FMMEP
Flood insurance	Specific type of insurance that offers coverage against property loss from flooding, often based on susceptibility of topographical areas to flood risk.	UFM
Flood inundation model	Flood inundation models are computer programs that simulate the spread of flood water from rivers, coasts or even urban drainage systems.	FLOODsite
Flood level	water level during a flood	FLOODsite
Flood management	Sum of all operational activities to be taken before, during and after an event as well as political and administrative decisions that are aimed at preventing or mitigating a flood event.	FMMEP
Flood management measures	Actions that are taken to reduce either the probability of flooding or the consequences of flooding or some combination of the two.	FLOODsite
Flood mitigation	Measures taken in order to protect people or property from the damaging effect of water; Synonymical: Flood damage mitigation, Flood control, Flood protection, Flood defence	FMMEP
Flood mitigation measures	Mitigation measures are planned actions or structures that will be triggered if a certain risk become real and it is treated as a issue that must be resolved. Mitigation plans take into account contingencies and preventive measures as well protective measures that must be put in place to avoid the realisation of the risk. Related to floods mitigation measures are methods of reducing the effects of floods. These methods may be structural solutions (e.g. reservoirs, levees) or non-structural (e.g. land-use planning, early warning systems).	FMMEP
Flood mitigation schema	General description of the possible measures to be taken in order to guarantee appropriate flood safety in particular area.	FMMEP
Flood peak	highest water level recorded in the river during a flood.	FLOODsite
Flood plain	part of alluvial plain that would be naturally flooded in the absence of engineered interventions	FLOODsite
Flood Plain Maps	Flood plain maps (or flood maps) indicate the geographical areas that could be covered by a flood according to one or several probabilities. These can range from floods with a very low probability (extreme events with a return period of say 1000 years); floods with a medium probability (a return period of say 100	FLOODsite

	years); floods with a high probability (a return period of say 5 years).	
Flood prevention	actions to prevent the occurrence of an extreme discharge peak	FLOODsite
Flood probability reduction measures	Measures which restore the retention potential of the natural hydrological system or even enhance the detention of rain water through small retention basins (Pasche, 2008 via Spekkers).	SMARTeST
Flood proofing	Measures to seal off buildings from floods by constructional changes at or near by the property, a kind of retrofitting measures	FMMEP
Flood protection (measure)	to protect a certain area from inundation (using dikes etc)	FLOODsite
Flood resilience	The ability to cope with flooding and the ability to recover from flooding (Zevenbergen, adapted NL)	SMARTeST
Flood resilience measures	A plan, or course of action, which provides resilience to flooding (OED/NL)	SMARTeST
Flood resilience product	A product that provides resilience to flooding (NL)	SMARTeST
Flood resilience systems	A set of things working together as parts of a mechanism. An interconnecting network which facilitates resilience to flooding (NL). In the context of SMARTeST, "system" is an all-embracing one covering urban flood under various flood type scenarios (riverine, pluvial, flash, coastal, groundwater, etc.) and embracing all flood management systems (warning systems, emergency service systems, drainage systems, flood risk models, resilience and protection systems, societal and stakeholder issues, flood risk management and governance, etc.) and over various scales from house to street to neighbourhood to city to conurbation to region to country. (Garvin and Lawson)	SMARTeST
Flood resilience technologies	Technology which provide resilience to flooding, e.g. technologies with the ability to resist flooding and to enable protection to/from flooding.	SMARTeST
Flood risk management	Continuous and holistic societal analysis, assessment and mitigation of flood risk.	FLOODsite
Flood risk mapping	Visualising the results of risk assessment on a map, showing the levels of expected losses which can be anticipated in specific areas, during a particular time period, as a result of a particular flood event describes the process or activity of flood risk mapping.	FMMEP
Flood risk zoning	delineation of areas with different possibilities and limitations for investments, based on flood hazard maps	FLOODsite
Flooding System (in context)	In broad terms, a system may be described as the social and physical domain within which risks arise and are managed. An understanding of the way a system behaves and, in particular, the mechanisms by which it may fail, is an essential aspect of understanding risk. This is true for an organisational system like flood warning, as well as for a more physical system, such as a series of flood defences protecting a flood plain.	FLOODsite
Floodwalls	Barriers made of concrete or masonry, a kind of flood proofing measures.	FMMEP

Flood warning system (FWS)	A system designed to warn members of the public of the potential of imminent flooding. Typically linked to a flood forecasting system	FLOODsite
Focus Groups	A qualitative research technique whereby carefully selected groups (8 to 12 participants) are brought together under skilled presenters (researchers) to exchange views on defined subjects and to bring forward the most possible number of views from a group. It provides knowledge and understanding as opposed to measuring quotas. Because of this it gives insight in how people think and why, but not to what extent the different views are shared by others.	FMMEP
Fragility	The propensity of a particular defence or system to fail under a given load condition. Typically expressed as a fragility function curve relating load to probability of failure. Combined with descriptors of decay/deterioration, fragility functions enable future performance to be described.	FLOODsite
Fragility curve	The likelihood of a flood defence structure failing under a given load is often referred to as its 'fragility'. A probabilistic measure of a structure's performance is typically expressed as a fragility curve relating 'loading' to 'probability of failure'.	FLOODsite
Frequency	specific number of events, often related to a timeframe (in the case of Return Period this is usually expressed in years)	FMMEP
Functional design	The design of an intervention with a clear understanding of the performance required of the intervention.	FLOODsite
Governance	The processes of decision making and implementation	FLOODsite
Gabions	Control points slowing the flow of water.	FMMEP
GIS	GIS is the abbreviation for Geographic Information System. GIS is a computer hardware and software system designed to collect, manipulate, analyse, and display spatially referenced data for solving complex resource, environmental and social problems. GIS are especially useful in management planning and land-use decisions on a landscape scale.	FMMEP
Green Roofs	Vegetated roofs that reduce the volume and rate of runoff and remove pollution	FMMEP
Harm	Disadvantageous consequences, economic, social or environmental. (See Consequence).	FLOODsite
Hazard	A physical event, phenomenon or human activity with the potential to result in harm. A hazard does not necessarily lead to harm.	FLOODsite,
Hazard awareness	Flood hazard awareness describes the notion, the understanding of dangers that can emerge from a flood. Thus it is essential for self-protection, as it implies hazard-adapted behaviour. It is also seen as precondition for flood protection measures and their endurance or sustainability. Hazard awareness normally evolves from experience of the adverse effects, consequential to a hazard.	FMMEP
Hazard map	Hazard maps show the extent of flood prone areas	FMMEP

	considering hydrodynamic impacts on buildings, infrastructure and environment and considering the variability of magnitudes of the expected events. Different zones are designated classifying the intensity of danger related to the probability of occurrences.	
Hazard mapping	The process of establishing the spatial extents of hazardous phenomena.	FLOODsite
Hazard, natural	“Natural processes or phenomena occurring in the biosphere that may constitute a damaging event.” (UNDP, 2004)	UFM
Hierarchy	A process where information cascades from a greater spatial or temporal scale to lesser scale and vice versa.	FLOODsite
Human reliability	Probability that a person correctly performs a specified task.	FLOODsite
Human security	“Human Security is about attaining the social, political, environmental and economic conditions conducive to a life in freedom and dignity for the individual.” (Hammerstad, 2000)	UFM
Hydraulic modelling	Hydraulic models are based on calculation techniques, which solve mathematical or physical equations to simulate water systems and make projections relating to water levels, flows and velocities. Hydraulic modelling is the simulation activity.	FMMEP
Ignorance	Lack of knowledge	FLOODsite
Implementation	Put (Fre technologies and systems) into effect. (OED)	SMARTeST
Indirect, tangible damages	Indirect damages are losses that occur due to the interruption of some activity by the flood, e.g. the loss of production due to business interruption in and outside the affected area or traffic disruption. These also include the extra costs of emergency and other actions taken to prevent flood damage and other losses. These are tangible when they can be specified in monetary terms.	FLOODsite
Infiltration devices	Sub-surface structures to promote the infiltration of surface water to ground. They can be trenches, basins or soakaways.	FMMEP
Innovative technologies	New and/or advanced and/or original FRe technology.	SMARTeST
Institutional uncertainty	Inadequate collaboration and/or trust among institutions, potentially due to poor communication, lack of understanding, overall bureaucratic culture, conflicting sub-cultures, traditions and missions.	FLOODsite
Integrated risk management	An approach to risk management that embraces all sources, pathways and receptors of risk and considers combinations of structural and non-structural solutions.	FLOODsite
Integrated Water Resource Management	IWRM is a process which promotes the co-ordinated management and development of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems	FLOODsite
Integration	Combining one thing with another to form a whole. (OED)	SMARTeST
Interactive Learning	Interactive learning can be defined as the learning that	FMMEP

Groups	occurs when individuals advance their understanding through dialogue. The individuals can be groups of learners working together, single learners engaged with a tutor or interactive computer, and groups of learners interacting with one or more experts.	
Intervention	A planned activity designed to effect an improvement in an existing natural or engineered system (including social, organisation/defence systems).	FLOODsite
Inundation	Flooding of land with water. (NB: In certain European languages this can refer to deliberate flooding, to reduce the consequences of flooding on nearby areas, for example. The general definition is preferred here.)	FLOODsite
(Flood) Inundation maps	Maps that present the water level and area prone to flooding. In some European countries it is connected with a given return period. As for instance; 10 years floods, 50 years floods, 100 years floods etc.	FMMEP
Judgement	Decisions taken arising from the critical assessment of the relevant knowledge.	FLOODsite
Kitemark	A product that is approved or accredited for a particular use e.g. flood gate barrier.	FMMEP
Knowledge	Spectrum of known relevant information.	FLOODsite
Knowledge uncertainty	Uncertainty due to lack of knowledge of all the causes and effects in a physical or social system. For example, a numerical model of wave transformation may not include an accurate mathematical description of all the relevant physical processes. Wave breaking aspects may be parameterised to compensate for the lack of knowledge regarding the physics. The model is thus subject to a form of knowledge uncertainty. Various forms of knowledge uncertainty exist, including: Process model uncertainty – All models are an abstraction of reality and can never be considered true. They are thus subject to process model uncertainty. Measured data versus modelled data comparisons give an insight into the extent of model uncertainty but do not produce a complete picture. Statistical inference uncertainty - Formal quantification of the uncertainty of estimating the population from a sample. The uncertainty is related to the extent of data and variability of the data that make up the sample. Statistical model uncertainty - Uncertainty associated with the fitting of a statistical model. The statistical model is usually assumed to be correct. However, if two different models fit a set of data equally well but have different extrapolations/interpolations then this assumption is not valid and there is statistical model uncertainty.	FLOODsite
Land use planning	The development of land use strategies to best meet people's current and future needs, according to the land's capabilities. Urban, city, or town planning, deals with design of the built environment from the municipal and metropolitan perspective. Regional planning deals with a still larger environment, at a less detailed level.	FMMEP
Legal uncertainty	the possibility of future liability for actions or inaction. The absence of undisputed legal norms strongly affects	FLOODsite

	the relevant actors' decisions.	
Likelihood	A general concept relating to the chance of an event occurring. Likelihood is generally expressed as a probability or a frequency.	FLOODsite
Limit state	The boundary between safety and failure.	FLOODsite
Load	Refers to environmental factors such as high river flows, water levels and wave heights, to which the flooding and erosion system is subjected.	FLOODsite
Low lying areas	Low lying areas are defined here as "areas with artificially maintained levels in watercourses, where peak water (river or tide) levels are higher than the surrounding land levels".	FMMEP
Maps	A map is a simplified depiction of a space which highlights relations between objects within that space. Most usually a map is a two-dimensional, geometrically accurate representation of a three-dimensional space. Maps are a common instrument to illustrate flood related information. Depending on the information that is to be shown different notations are in use.	FMMEP
Marine flood	The inundation of land areas along the coast by sea waters over and above normal tide actions (OED and Evelpidou).	SMARTeST
Mean sea level	The sea level halfway between the mean levels of high and low water (OED)	SMARTeST
Mitigation	The action of reducing the severity, seriousness or painfulness of something. (OED)	SMARTeST
Model	An abstract construct to represent a system for the purposes of reproducing, simplifying, analysing, or understanding it. The definition of a model can be broadly divided into perceptual, conceptual and procedural models.	FLOODsite
Model, Conceptual	The mathematical description of a perceptual model is a conceptual model. It is a construct of mathematical and logical statements that describe a complex system in quantitative terms; a carefully constructed, but sharply limited simulation of nature. It includes hypotheses and assumptions to simplify the processes.	FLOODsite
Model, Perceptual	Summary of our (personal) perceptions on how a system responds. Perceptual models are frameworks representing how a given theorist views the phenomena of concern to a discipline. People receive information, process this information, and respond accordingly many times each day. This sort of processing of information is essentially a perceptual model of how things in our surrounding environment work. The perceptual understanding of systems is far greater than most material model implementations.	FLOODsite
Model, Procedural	Converts a conceptual model essentially to a computer code for example the replacement of differentials of the original equation by finite-difference or finite-volume equivalents.	FLOODsite
Modelling	Modelling is the process of imitating a real phenomenon or process with a set of mathematical	FMMEP

	formulas. In principle, any phenomena that can be reduced to mathematical data and equations can be simulated on a computer. But, as natural phenomena are subject to an almost infinite number of influences the most tricky task developing useful simulations is to determine the most important factors.	
Morphological change	Morphology is the study of shapes or forms and morphological change in rivers, estuaries and coasts relate to changes in their shape.	FLOODsite
Municipal master plan	A spatial plan at a municipal level.	FMMEP
Natural variability	Uncertainties that stem from the assumed inherent randomness and basic unpredictability in the natural world and are characterised by the variability in known or observable populations.	FLOODsite
Non-structural mitigation measures	Non-structural measures include all mitigation measures that are not based on large-scale defences.	FMMEP
Non-Structural Responses	Responses to urban flood risk that do not involve fixed or permanent facilities and their positive contribution to the reduction of flood risk is most likely through influencing behaviour, usually through government regulation, persuasion, and or economic instruments.	FMMEP
Numerical hydraulic modelling	Calculation / simulation of the flow behaviour of a stream based on different parameters.	FMMEP
Parameters	The parameters in a model are the “constants”, chosen to represent the chosen context and scenario. In general the following types of parameters can be recognised: <i>Exact parameters</i> - which are universal constants, such as the mathematical constant: Pi (3.14259...). <i>Fixed parameters</i> - which are well determined by experiment and may be considered exact, such as the acceleration of gravity, g (approximately 9.81 m/s). <i>A-priori chosen parameters</i> - which are parameters that may be difficult to identify by calibration and so are assigned certain values. However, the values of such parameters are associated with uncertainty that must be estimated on the basis of a-priori experience, for example detailed experimental or field measurements <i>Calibration parameters</i> - which must be established to represent particular circumstances. They must be determined by calibration of model results for historical data on both input and outcome. The parameters are generally chosen to minimise the difference between model outcomes and measured data on the same outcomes. It is unlikely that the set of parameters required to achieve a "satisfactory" calibration is unique.	FLOODsite
Pathway	Route that a hazard takes to reach Receptors. A pathway must exist for a Hazard to be realised.	FLOODsite
Perception	The way in which something (Fre technology/systems), understood or interpreted. (OED)	SMARTeST
Performance	The degree to which a process or activity succeeds when evaluated against some stated aim or objective.	FLOODsite
Performance indicator	The well-articulated and measurable objectives of a particular project or policy. These may be detailed	FLOODsite

	engineering performance indicators, such as acceptable wave overtopping rates, rock stability, or conveyance capacity or more generic indicators such as public satisfaction	
Permeable paving	Hard surfaces capable of allowing water to pass through and be retained beneath it.	FMMEP
Pervious surfaces	Surfaces that allow inflow of rainwater into the underlying construction or soil.	FMMEP
Pipes and Accessories	A series of conduits and their accessories normally laid underground that convey surface water to a suitable location for treatment and/or disposal. (Although sustainable, these techniques should be considered where other SUDS techniques are not practicable).	FMMEP
Planning instrument	Planning instruments are maps or plans for formulating future goals in a specific area. It can consist of one or more maps and text.	FMMEP
Pluvial flooding	Rainfall-generated overland flow ponding on the urban surface because it overwhelms urban underground sewerage/drainage systems and surface watercourses by its high intensity or is for some reasons unable to enter drainage system or water courses.(ten Veldhuis 2010)	SMARTeST
Poll	A series of questions asked of a group of people in order to find out what they think about particular subject or how they will vote in an election	FMMEP
Post-Flood Mitigation:	Measures and instruments after flood events to remedy flood damages and to avoid further damages.	FLOODsite
Precautionary Principle	Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation	FLOODsite
Precision	degree of exactness regardless of accuracy.	FLOODsite
Pre-Flood Mitigation:	Measures and instruments in advance to a flood event to provide prevention (reducing flood hazards and flood risks by e.g. planning) and preparedness (enhancing organizational coping capacities).	FLOODsite
Preparedness	The ability 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.	FLOODsite
Preparedness Strategy	Within the context of flood risk management a preparedness strategy aims at ensuring effective responses to the impact of hazards, including timely and effective early warnings and the evacuation of people and property from threatened locations	FLOODsite
Process model uncertainty:	All models are an abstraction of reality and can never be considered true. They are subject to process model uncertainty. Measured data versus modelled data comparisons give an insight into the extent of model uncertainty but do not produce a complete picture.	FLOODsite
Probability	A measure of our strength of belief that an event will occur. For events that occur repeatedly the probability of an event is estimated from the relative frequency of occurrence of that event, out of all possible events.	FLOODsite

Probabilistic method	Method in which the variability of input values and the sensitivity of the results are taken into account to give results in the form of a range of probabilities for different outcomes.	FLOODsite
Probability density function (distribution)	Function which describes the probability of different values across the whole range of a variable (for example flood damage, extreme loads, particular storm conditions etc).	FLOODsite
Probabilistic reliability methods	These methods attempt to define the proximity of a structure to fail through assessment of a response function.	FLOODsite
Project Appraisal	The comparison of the identified courses of action in terms of their performance against some desired ends.	FLOODsite
Progressive failure	Failure where, once a threshold is exceeded, significant (residual) resistance remains enabling the defence to maintain restricted performance. The immediate consequences of failure are not necessarily dramatic but further, progressive, failures may result eventually leading to a complete loss of function.	FLOODsite
Proportionate methods	Provide a level of assessment and analysis appropriate to the importance of the decision being made.	FLOODsite
Proprietary uncertainty	indicates contested rights to know, to warn or to secrete. In both risk assessment and management, there are often considerations about the rights of different people to know, to warn or to conceal	FLOODsite
Random events	Events which have no discernible pattern..	FLOODsite
Receptor	Receptor refers to the entity that may be harmed (a person, property, habitat etc.). For example, in the event of heavy rainfall (<i>the source</i>) floodwater may propagate across the flood plain (<i>the pathway</i>) and inundate housing (<i>the receptor</i>) that may suffer material damage (<i>the harm or consequence</i>). The vulnerability of a receptor can be modified by increasing its resilience to flooding.	FLOODsite
Record (in context)	Not distinguished from event (see <i>Event</i>)	FLOODsite
Recovery capacity	The ability, or power to return to the original state, e.g. the capacity to recover (NL + OED)	SMARTeST
Recovery time	The time taken for an element or system to return to its prior state after a perturbation or applied stress.	FLOODsite
Reliability	he ability to be reliable. Reliable: contantly good quality or performance, trustworthy. (NL + OED)	SMARTeST
Reliability index	A probabilistic measure of the structural reliability with regard to any limit state.	FLOODsite
Relocating the building	Moving a building out of the floor area, a kind of flood proofing measures.	FMMEP
Remote Sensing	The observation of the earth or atmosphere from space with satellites or from the air using aircrafts is called Remote Sensing.	FMMEP
Representation	The action of speaking or acting on behalf of someone (OED)	SMARTeST
Representative	Typical (OED)	SMARTeST

Residual life	The residual life of a defence is the time to when the defence is no longer able to achieve minimum acceptable values of defined performance indicators (see below) in terms of its serviceability function or structural strength.	FLOODsite
Residual flood probability	An estimate of the chance of flooding taking place, taking account of the protection afforded by defences	FLOODsite
Residual life	The residual life of a defence is the time to when the defence is no longer able to achieve minimum acceptable values of defined performance indicators (see below) in terms of its serviceability function or structural strength.	UFM
Residual risk	The risk that remains after risk management and mitigation measures have been implemented. May include, for example, damage predicted to continue to occur during flood events of greater severity than the 100 to 1 annual probability event.	FLOODsite
Resilience	The ability of a system/community/society/defence to react to and recover from the damaging effect of realised hazards.	FloodSite
Resilience, social	The capacity of a community or society potentially exposed to hazard to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organising itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.	UFM
Resistance	The ability of a system to remain unchanged by external events.	FloodSite
Response (in context)	The reaction of a defence or system to environmental loading or changed policy.	FloodSite
Response function	Equation linking the reaction of a defence or system to the environmental loading conditions (e.g. overtopping formula) or changed policy.	FLOODsite
Retrofitting	Retrofitting describes the upgrading of an existing building to increase safety by adding or replacing items. This could be done by any combination of changes or adjustments incorporated in the design, construction, or alteration of individual buildings or properties. The reinforcement of structures tends to be the only aim to become more resistant and resilient to the forces of natural hazards. Retrofitting techniques involve flood-proofing, elevation, construction of small levees, and other modifications made to an existing building or its yard to protect it from flood damage.	FMMEP
Return period	The expected (mean) time (usually in years) between the exceedence of a particular extreme threshold. Return period is traditionally used to express the frequency of occurrence of an event, although it is often misunderstood as being a probability of occurrence.	FloodSite
Risk	Risk is a function of probability, exposure and vulnerability. Often, in practice, exposure is incorporated in the assessment of consequences, therefore risk can be considered as having two	FloodSite

	components — the probability that an event will occur and the impact (or consequence) associated with that event. Often this is abbreviated as Risk = Probability multiplied by consequence	
Risk acceptance	Risk acceptance describes the willingness to tolerate a risk, whereby the acceptable risk refers to the level of loss a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.	FMMEP
Risk analysis	A methodology to objectively determine risk by analysing and combining probabilities and consequences	FloodSite:
Risk assessment	Comprises understanding, evaluating and interpreting the perceptions of risk and societal tolerances of risk to inform decisions and actions in the flood risk management process	FloodSite
Risk communication (in context)	Any intentional exchange of information on environmental and/or health risks between interested parties.	FLOODsite
Risk management	The complete process of risk analysis, risk assessment, options appraisal and implementation of risk management measures	FLOODsite
Risk management measures	An action that is taken to reduce either the probability of flooding or the consequences of flooding or some combination of the two.	FloodSite:
Risk mapping	The process of establishing the spatial extent of risk (combining information on probability and consequences). Risk mapping requires combining maps of hazards and vulnerabilities. The results of these analyses are usually presented in the form of maps that show the magnitude and nature of the risk.	FloodSite
Risk perception	Risk perception is the view of risk held by a person or group and reflects cultural and personal values, as well as experience.	FloodSite
Risk profile	The change in performance, and significance of the resulting consequences, under a range of loading conditions. In particular the sensitivity to extreme loads and degree of uncertainty about future performance.	FloodSite
Risk reduction	The reduction of the likelihood of harm, by either reduction in the probability of a flood occurring or a reduction in the exposure or vulnerability of the receptors.	FloodSite
Risk register	An auditable record of the project risks, their consequences and significance, and proposed mitigation and management measures.	FloodSite
Risk significance (in context)	The separate consideration of the magnitude of consequences and the frequency of occurrence.	FloodSite
River catchment	The river catchment, or drainage basin, is all the land from the mountain to the seashore, drained by a single river and its tributaries (NL/www)	SMARTeST
Robustness	Capability to cope with external stress. A decision is robust if the choice between the	FloodSite

	alternatives is unaffected by a wide range of possible future states of nature. Robust statistics are those whose validity does not depend on close approximation to a particular distribution function and/or the level of measurement achieved.	
Scale	Difference in spatial extent or over time or in magnitude; critical determinant of vulnerability, resilience etc.	FLOODsite
Scenario	A plausible description of a situation, based on a coherent and internally consistent set of assumptions. Scenarios are neither predictions nor forecasts. The results of scenarios (unlike forecasts) depend on the boundary conditions of the scenario.	FloodSite:
Sea level rise	An increase of the relative mean sea level (Esteban)	SMARTeST
Sea water floods/flooding	Inundation of land areas adjacent to the coast solely by sea waters over and above the level normally wetted by sea water (Toumazis/NL)	SMARTeST
Sealing	Sealing is a dryproofing technique where the floodwater does not reach the interior of the building as the external walls and openings are sealed and used to hold back the floodwater	FMMEP
Sensitivity	Refers to either: the resilience of a particular receptor to a given hazard. For example, frequent sea water flooding may have considerably greater impact on a fresh water habitat, than a brackish lagoon; or: the change in a result or conclusion arising from a specific perturbation in input values or assumptions.	FloodSite
Sensitivity Analysis	The identification at the beginning of the appraisal of those parameters, which critically affect the choice between the identified alternative courses of action.	FloodSite
Severity	Refers to either: the resilience of a particular receptor to a given hazard. For example, frequent sea water flooding may have considerably greater impact on a fresh water habitat, than a brackish lagoon; or: the change in a result or conclusion arising from a specific perturbation in input values or assumptions.	FLOODsite
Shielding	Shielding is a dryproofing strategy where flood barriers are installed at some distance from the building or a group of properties. Free standing barriers or anchored barriers (pillars temporarily fixed at a concrete plate) are usually used	FMMEP
Smart technologies	Technology that responds to and reacts to flood incidents with minimal human intervention. Smart technology has defined uses and performance measures and should be assessed through recognised testing methods and quality assurance. (Garvin)	SMARTeST
Social learning	Processes through which the stakeholders learn from each other and, as a result, how to better manage the system in question.	FloodSite
Social resilience	The capacity of a 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. This is determined by the	FloodSite

	degree to which the social system is capable of organising itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.	
Social vulnerability	This can be defined as the characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard. (cf vulnerability below)	FLOODsite
Source	The origin of a hazard (for example, heavy rainfall, strong winds, surge etc).	FloodSite
Spatial planning	Public policy and actions intended to influence the distribution of activities in space and the linkages between them. It will operate at EU, national and local levels and embraces land use planning and regional policy	FloodSite
Stakeholders	Parties/persons with a direct interest (stake) in an issue, also Stakeowners.	FloodSite
Stakeholder Engagement	Process through which the stakeholders have power to influence the outcome of the decision. Critically, the extent and nature of the power given to the stakeholders varies between different forms of stakeholder engagement.	FloodSite
Standard of service	The measured performance of a defined performance indicator.	FLOODsite
Storm surges	An elevation of sea level caused by a combination of change in atmospheric pressure, currents, waves and the topography of the coastal shelf. (NL from web and other descriptions + input from Esteban)	SMARTeST
Strategic spatial planning	Process for developing plans explicitly containing strategic intentions referring to spatial development. Strategic plans typically exist at different spatial levels (local, regional etc).	FloodSite
Strategy (flood risk management)	A strategy is a combination of long-term goals, aims, specific targets, technical measures, policy instruments, and process, which are continuously aligned with the societal context.	FloodSite
Statistic	A measurement of a variable of interest which is subject to random variation.	FLOODsite
Statistical inference uncertainty:	Formal quantification of the uncertainty of estimating the population from a sample. The uncertainty is related to the extent of data and variability of the data that make up the sample.	FLOODsite
Statistical model uncertainty:	Uncertainty associated with the fitting of a statistical model. The statistical model is usually assumed to be correct. However, if two different models fit a set of data equally well but have different extrapolations/interpolations then this assumption is not valid and there is statistical model uncertainty.	FLOODsite
Structural mitigation measures	Measure taken to protect people and property, that counteracts the flood event in order to reduce the hazard or to influence the course or probability of occurrence of the event. Often used as synonym for	FMMEP

	active protection measures	
Susceptibility	Likelihood to be influenced or harmed by a particular thing. (OED)	SMARTeST
Sustainable development	Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs	FLOODsite
Sustainable drainage	Sustainable Drainage Systems: an approach to surface water management that combines a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.	FMMEP
Sustainable flood risk management strategy	An approach which <ul style="list-style-type: none"> • aims to be effective in the long term, and • can be combined ('integrated') with other international, national and regional activities (transport, environment, conservation etc.) 	FloodSite
Susceptibility	The propensity of a particular receptor to experience harm.	FloodSite
Swales	Shallow vegetated channels that conduct and retain water, and may also permit infiltration; the vegetation filters particulate matter)	FMMEP
System	An assembly of elements, and the interconnections between them, constituting a whole and generally characterised by its behaviour. Applied also for social and human systems. (FLOODsite). In the context of SMARTeST, "system" is an all-embracing one covering urban flood under various flood type scenarios (riverine, pluvial, flash, coastal, groundwater, etc.) and embracing all flood management systems (warning systems, emergency service systems, drainage systems, flood risk models, resilience and protection systems, societal and stakeholder issues, flood risk management and governance, etc.) and over various scales from house to street to neighbourhood to city to conurbation to region to country. (Garvin and Lawson)	FloodSite and SMARTeST
System state	The condition of a system at a point in time.	FloodSite
Test	A procedure intended to establish the quality, performance or reliability of something (NL + OED)	SMARTeST
Threshold capacity	the ability of a society to build up a threshold against variation in order to prevent damage (de Graaf, 2009-supplied by Spekkers).	SMARTeST
Tide	The rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun and the rotation of the Earth (NL/www).	SMARTeST
Tolerability	Refers to willingness to live with a risk to secure certain benefits and in the confidence that it is being properly controlled. To tolerate a risk means that we do not regard it as negligible, or something we might ignore,	FloodSite

	but rather as something we need to keep under review, and reduce still further if and as we can. Tolerability does not mean acceptability.	
Uncertainty	A general concept that reflects our lack of sureness about someone or something, ranging from just short of complete sureness to an almost complete lack of conviction about an outcome.	FloodSite
Uncertainty analysis	Uncertainty analysis is the process of assessing the extent of uncertainty in model results or predictions, in order to communicate their fitness as a basis for decision-making.	FLOODsite
Validation	is the process of comparing model output with observations of the 'real world'.	FloodSite
Variability	The change over time of the value or state of some parameter or system or element, where this change may be systemic, cyclical or exhibit no apparent pattern.	FloodSite
Variable	A quantity, which can be measured, predicted or forecast which is relevant to describing the state of the flooding system e.g. water level, discharge, velocity, wave height, distance, or time. A prediction or forecast of a variable will often rely on a simulation model, which incorporates a set of parameters.	FloodSite
Voluntariness	The degree to which an individual understands and knowingly accepts the risk to, which they are exposed in return for experiencing a perceived benefit. For an individual may preferentially choose to live in the flood plain to experience its beauty and tranquillity.	FloodSite
Vulnerability	Characteristic of a system that describes its potential to be harmed. This can be considered as a combination of susceptibility and value.	FLOODsite
Water Butts	Storage of rain water for outside use.	FMMEP
Water management	Water management refers to various activities, which aims for an optimal use and distribution of surface and subsurface water, the rationing of drinking water abstraction and distribution and an effective wastewater treatment. Besides the study, planning, monitoring, and application of quantitative and qualitative control and development techniques for long-term and multiple use of the diverse forms of water resources, also the flood protection counts to the tasks of water management.	FMMEP
Waterproofing	Sealing of walls and ceiling to avoid water penetration into the structure. will be equalled or exceeded <ul style="list-style-type: none"> • Wet flood proofing • Dry flood proofing 	FMMEP
Watershed	See catchment area	UFM
Weir	A weir is a small overflow-type dam commonly used to raise the level of a small river or stream. Adjustable weir:	FMMEP

	weir of which crest-height is adjustable. Crest can be lowered to increase water flow to low-lying area and to create space in the upstream area for rainfall capture. Crest can be raised to reduce (peak) discharge to low-lying area and store water in upstream area.	
Wet proofing	The water is allowed to enter the building but the building fabric and the contents are “waterproofed” by application of flood resistant materials. (Era Net Crue)	SMARTeST
Zoning plans	are plans of restricted areas within the municipality.	FMMEP