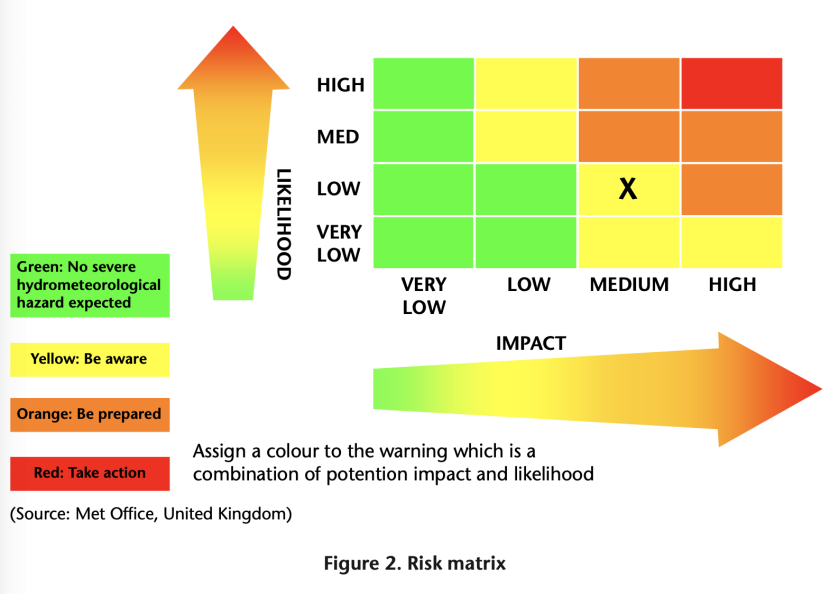
Glossary - IBFWS Course
22 May 2022

Term	Definition
hazard	A hydrometeorological-based, geophysical or human-induced element that poses a level of threat to life, property or the environment.
risk matrix	A risk matrix is a warning communication format that shows the potential severity and the likelihood of occurrence of an expected impact. It is recommended that NMHSs work together with DRCPAs to develop the risk matrix to convey both the expected impacts (including vulnerability and exposure) and the likelihood of a forecasted event. In contrast to the traditional threshold-based or "yes/no" (deterministic) weather warning system, this approach facilitates: 1. A consistent means for the early expression of potential impact, well in advance of a significant hydrometeorological event. 2. A means to progressively express changing expectations of risk as a function of varying exposure, vulnerability and hydrometeorological likelihood.  **Figure 2. Risk matrix**
storm surge	A storm surge, storm flood, tidal surge, or storm tide is a coastal flood or tsunami-like phenomenon of rising water commonly associated with low-pressure weather systems, such as cyclones. It is measured as the rise in water level above the normal tidal level, and does not include waves. https://en.wikipedia.org/wiki/Storm_surge
DRCPA	Disaster Risk Reduction and Civil Protection Agency
ensemble forecasting	Ensemble forecasting is a method used in or within numerical weather prediction. Instead of making a single forecast of the most likely weather, a set of forecasts is produced. This set of forecasts aims to give an

	indication of the range of possible future states of the atmosphere. https://en.wikipedia.org/wiki/Ensemble_forecasting
IBFWS	Impact-based forecast warning service
multi-hazard impact-based forecasting	Implementation of multi-hazard impact-based forecasting involves a number of complex factors. For example: ○ Warnings may be driven by location and timing, season, demographics. ○ Vulnerability may be modulated by infrastructure integrity and may evolve over time. For example, stricter building codes implemented in Florida after Hurricane Andrew in 1992, changed the vulnerability. ○ Insurance studies may provide data on vulnerability: Pacific Catastrophe Risk Assessment and Financing Initiative, which has systematically collected data at the household level throughout many Pacific island countries.
NHMS	National Meteorological and Hydrological Service
probabilistic Forecasting	Probabilistic forecasting summarizes what is known about, or opinions about, future events. In contrast to single-valued forecasts, probabilistic forecasts assign a probability to each of a number of different outcomes, and the complete set of probabilities represents a probability forecast. https://en.wikipedia.org/wiki/Probabilistic_forecasting
risk communication approach	Risk communication is a complex and rapidly developing field that focuses on how risk is communicated and understood. Social science tells us that the concept of risk is socially constructed, meaning that different people and communities may perceive risk differently depending on their experiences and context. For example, for persons in a community who have survived severe storms in the past, conveying the level of actual risk of another approaching storm may be difficult.
vulnerability	Susceptibility of exposed elements, such as human beings and their livelihoods and property, to suffer adverse effects when affected by a hazard. The susceptibility of an individual, a community, assets or systems may be affected by physical, social, economic and environmental factors or processes. Vulnerability may be situation-specific, and its relationship to the hazard may determine the risk. Thus, vulnerability may also be time and space dependent. For example, flood defenses built to protect the population of

	low-lying areas, or stricter building codes implemented after a major storm may reduce the vulnerability in those areas, while the exposure to risks remains the same.
Common Alerting Protocol (CAP)	The Common Alerting Protocol (CAP) is a standard for sharing information across partnerships. CAP enables providers to communicate alerts to targeted users across different sources and media. CAP and IBFWS can work together to complement each other. CAP allows senders to activate multiple warning systems with a single input. It is compatible with all kinds of public alerting information systems, and defines a digital message format applicable to all types of alerts.
exposure	The degree to which people and property are likely to encounter or come into contact with a hazard. There can be similar exposure to risk with differing amounts of vulnerability. For example, people living in a floodplain have exposure to flood risk, but their vulnerability may be reduced if their building has been modified to protect from flood damage. Exposure may be dependent on time and location. For example, exposure to potential storm damage may be greater during monsoon season, and in open, low-lying areas.
risk	The potential (probability and magnitude) for loss of life, injury, or damage to assets and livelihoods for an individual, system, or community over a specified period of time, due to exposure and vulnerability to a hazard. Risks may be connected to each other, and their effects may be compounded and may apply simultaneously. For example, the risk of flooding may be linked to the risk of the spread of disease consequent to impacts on sanitation infrastructure. A large snowpack accumulation can lead to avalanches. This may later have an impact of increased sensitivity to flooding events from any subsequent rainfall. High wind events may amplify the impact from a spreading wildfire.
multi-hazard	The various hazards a country may experience or the occurrence of hazardous events at the same time, or in a cascading or cumulative way over time, along with possible interrelated effects. https://www.undrr.org/terminology/hazard
threshold-based warnings	Threshold-based warnings address significant hazards as necessary. They generally provide standardized warning text along with some sort of colour-coded/numbering system linked to specialized public messaging systems used only during extreme events. Although they often describe impacts, they may be triggered only by weather-based factors. Some NMHSs quantify thresholds based on a probability of occurrence and provide targeted warnings based on them. An example of this is the use of the Saffir-Simpson scale categorizing the impacts of tropical

	systems into a 5-point scale based on wind speed.
UNDRR	United Nations Office for Disaster Risk Reduction
5W Format (Who, What, When, Where, Why)	Who: To whom is the information targeted? Different communities of users have different needs and areas of focus with regards to hazards. For example, transport departments may be most interested in precipitation that impacts roadways, while other civil authorities may be more interested in wind speed and direction. What: What are the details about the expected hazard? Details should not be restricted to quantitative measures of the hazard, such as centimetres of snow expected or range of wind speed. They also should include basic information on possible impact(s) like slippery roads or downed power lines. This information may be customised to specific user needs. Where: Where is the hazard expected? The level of desired specificity regarding the hazard location may vary based on a number of factors and should be coordinated with user requirements. Factors influencing the desired specificity may include the scope of the hazard (i.e. local versus regional scale), dissemination capabilities (for example, ability to display graphical, fine scale information via Internet or phone) and user need based on their operations. When: What is the expected onset time, duration and termination of the hazard(s)? This information is critical for users to support planning and operations. The level of detail about hazards should be specific enough to support users in taking action to protect themselves and their communities. This should be coordinated with user groups as it may vary. In general, though, being more specific is more useful. For example, “rain will begin at 4.00 a.m.” is much more useful than “rain will begin early in the morning”. Why/Impacts: What are the expected impacts? Why is it important to take action? What are the expected impacts from the hazard(s)? What are the recommended actions based on these? This section is of key importance. It may include specific details for planning purposes (for example, “bridges over the river may be closed to high profile vehicles”) or calls to action (for example, “Turn Around Don’t Drown”). Information on the spatial and temporal frequency of impacts within the warning area and period may also be very useful.