## Acting in vain

Acting in vain happens in the following scenario:

Based on the trigger received, the Early Action Protocol is activated, and the early actions identified are implemented in anticipation of the extreme event. However, the event does not materialise as predicted. The implementation of these early actions in spite of the event not happening can be referred to 'Acting in Vain'. In general, FbF practitioners should avoid the term "acting in vain", as these actions should be designed in a way that they still benefit the population (for example in a future disaster), and the repeated benefits of acting based on the forecast may outweigh not acting at all.

## Action lifetime

The length of time that the positive impacts of the action will last after the action is implemented. For example, if drains are cleared in a city to reduce potential flooding, the drains may remain sufficiently clear for a few weeks, having a temporary lasting effect.

Note:
If we take an action with a long lifetime based on a forecast, such as distributing a 30-day supply of chlorine tablets, we would not want to take that same action again until the lifetime of the first action was over. Reoccurring extreme events can reduce the action lifetime.

## Cash & voucher assistance

Cash and voucher assistance (CVA) can be selected as an early action to prevent or mitigate the impact of extreme weather events. CVA can allow humanitarian organisations to respond to multiple causes of vulnerability, and to tailor humanitarian programmes as closely as possible to national and local needs.

## Climatology

The average climate of a specific location, which includes magnitudes of the hazard in that location. The climatology of a location can be expressed as return period maps that explain the probability of an extreme event happening in a given year.

## Contingency planning

Establishing predefined arrangement and actions to enable timely, effective, and appropriate responses to possible future risks.

Note:
Governments and organizations have contingency plans to prepare and respond to disasters. These plans can inspire the selection of forecast-based actions, and also serve as a guide for the development of Early Action Protocols. EAPs should be developed in a way that ensures coherence with existing contingency plans.

## Deterministic weather forecast

A forecast of a future condition (e.g. weather event), which does not include the likelihood of whether or not that event will happen. E.g. 10mm of rain tomorrow.

## Drill

See also “Simulation”.

## Early Action

What is considered an “early action”, differs among some organizations. However, those organisations implementing anticipatory humanitarian action or FbF have agreed on three key parameters:

(1) time factor: the action happens in anticipation of a hazard impact;

(2) the early actions aim to prevent or mitigate the impact;

(3) the action is activated by a  forecast and/or collaborative analysis predicting an event.

In the case of FbF, early actions are activated by a forecast.

## Early Action Protocol (EAP)

An Early Action Protocol contains information on triggers and early actions and describes the step-by-step process for the implementation of early actions, once a trigger is hit. It provides guidelines for who

takes action when, where, and with what funds. The activation of the protocol is triggered when a certain forecast reaches a certain level that indicates there could be severe negative impacts (see impact level). For the FbA by the DREF, the Early Action Protocol also serves as the document justifying the chosen triggers and early actions and thus contains analysis in this regard.

## Early Warning System

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss (UNISDR 2009).

## Early Warning Early Action

The general concept of taking early action based on a warning. Umbrella term that also covers Forecast-based-Financing. EWEA builds on the Early Warning Systems concept, emphasizing the need to reinforce actions as key outputs of the warning system.

## Ensemble Prediction Systems (EPS)

Forecast method that uses multiple weather forecast model runs to assess the uncertainty in that forecast.  Ensemble Prediction Systems are numerical weather prediction systems that allow us to estimate the uncertainty in a weather forecast as well as the most likely outcome. Note: at a simple level, the percentage of ensembles exceeding a threshold (such as 10% of ensembles exceeding 100 mm of rainfall), is often communicated as the probability of that event occurring.

## Exposure

The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas (UNDRR).

## Extended-range Weather Forecasting

Beyond 10 days and up to 30 days description of weather parameters, usually averaged and expressed as a departure from climate values for that period.

## Extreme Weather Event

Weather that is unusual or severe for a specific location, based on the range that has been seen in the past. Impacts of extreme weather events are considered disasters when they produce widespread damage and cause severe alterations in the normal functioning of communities or societies.

## Impact-based Forecasting

(Also called Impact-based warning services)

A forecast of the potential consequences of a hydrometeorological event, in terms of its effects on people, infrastructure, etc. These types of forecasts and warnings are designed to provide detailed information precisely on who or what is exposed and vulnerable to the particular hazard. For impact forecast and warning services, exposure is explicitly considered along with the hazard and vulnerability (WMO 2016). This type of service changes the paradigm of hazard forecasting (what the weather will BE) towards the integration of risk (what the weather will DO).

## Feasibility Study (FS)

The FS is a preliminary collection and assessment of information to make a recommendation as to under what conditions FbF can be set up in a specific country, and to begin exploring different design options for the FbF system, including choice of hazard(s) and risks to address, involved institutions, local buy-in, available forecasts and vulnerability and exposure data, and possible actions.

## False Alarm Ratio (FAR)

The false alarm ratio is the number of “false alarm” forecasts (in which an event was forecasted but did not happen) divided by the total number of times the event was forecasted. (e.g. If 2 flood forecasts were false alarms and 2 flood forecasts resulted in floods, then the FAR would be 2/4 or 50%). In FbF, this criteria is considered when analysing the skill of the respective forecast.

## Forecast

A statement of expected meteorological and environmental conditions for a specified time or period, and for a specified area.  In the case of FbF, the forecast provides information about the possibility of an extreme event happening in the foreseeable future.

Note:
Forecasts are often divided into short-term weather forecasts (less than 10 days), sub-seasonal forecasts (20-40 days) and seasonal forecasts (3-6 months).

## Forecast-based Action by DREF

A fund managed by IFRC, which automatically allocates resources when a trigger is reached, and early actions are activated. The fund is available to all Red Cross and Red Crescent societies that have successfully developed an EAP.

## Forecast-based Financing (FbF)

Approach of anticipatory humanitarian action used by Red Cross and Red Crescent. Based on forecast information and risk analysis, FbF releases humanitarian funding for pre-agreed early actions to prevent or mitigate the impact of extreme events. Funds are allocated automatically when a specific threshold (trigger) is reached.

## Forecast Skill

How well forecasts compare to the actual observation of what was predicted, over a long period of issuing forecasts.

## Historical impact

Data on impacts of past disasters that will contribute to determining the impact level/trigger and to the selection of early actions. Gathering historical impact data is an important part of the initial analysis that is the first step of EAP development.

## Historical forecast data/hindcasts

Historical forecasts are the archived forecasts that were issued in the past. They are analysed to see how well a model performs. If a forecast model has not been operating in the past, hindcasts are made, so the model is run with past data to see what it would have forecasted during that time. Historical forecasts and hindcasts are used for forecast verification.

## Hazard-impact curve

The relationship between the magnitude of the hazard and the impact. For example, as windspeeds rise, the number of houses destroyed will rise. A graph of this relationship will look like a curve.

## Hazard magnitude

This is the strength of a hazard. Most hazards are measured on a scale e.g. the Richter scale or the volcanic explosivity index (VEI). Generally speaking, the stronger the hazard the more severe the hazard is.

## Intervention map

Is the graphical representation of the impact-based forecasting outputs.  It combines the data of the forecast that has been selected for the trigger with the vulnerability and exposure indicators used to predict the prioritized impact (e.g. destruction of houses). As a result, the map shows those areas for which the highest impact is predicted and where the early actions should be implemented as a priority (e.g. districts where based on forecasted windspeed combined with quality of housing and proximity to coastline most houses will be destroyed).

## Impact Level

The degree of forecasted loss and damage (human, livelihoods, infrastructure, environment etc.), or in other words the degree of humanitarian impact of an extreme event that would trigger action. If more than a predetermined probability of a certain amount of loss/damage is forecasted, we act.

## Implementation time

Time required to implement and complete the early actions.

## Lead time

The time from when the forecast is issued until the occurrence of the event that is forecasted to happen. E.g. a forecast issued on Monday for a storm to make landfall on Friday has a 4-day lead time.

## Menu of Forecasts

An analysis of the types of forecasts that are available, and which could be used to trigger early action. This analysis includes source, skill, lead time and also forecast verification, for example, the False Alarm Ratio, to determine what is the best possible forecast that can be used, or what combination of forecasts could be used. In the EAP template used by FbA by the DREF, the Menu of Forecasts is represented in a table format.

## National Scale / Flexible Approach

In FbF 'national scale' refers to setting up the FbF system in a way that early actions should be appropriate and feasible to be carried out in all areas of a country that are potentially at risk of the respective hazard. Humanitarian emergency response acts in those areas where disaster impacts and resulting needs are highest, in the same vein, in FbF, early actions should be carried out in areas where the predicted impact is highest. Hence the system should never be set up only for some pre-selected communities, instead it should be set up in a way that the National Society can act early anywhere in the country where the forecasts indicate a high impact of the approaching extreme event. Sometimes, the term national scale is misunderstood, as meaning the early actions will be carried out in all areas at risk (i.e. to potentially millions of people), which goes beyond capacities. For this reason, the term "flexible approach" is preferred.

## Preparedness for Effective Response (PER)

Aims to strengthen local preparedness capacities to ensure timely and effective humanitarian assistance. PER is a cyclical approach for a National Society (NS) to systematically assess, measure, and analyse the strengths and weaknesses of its response system, and to construct a work-plan accordingly.

The PER, with its 37 components in the areas of 1) policy, strategies and standards, 2) analysis and planning, 3) coordination, 4) operational capacity, and 5) operations support, provides coherence and guidance to National Societies on all elements and its interconnections which comprise a robust National Disaster Preparedness for Response Mechanism.

## Predictive Analytics (in the humanitarian sector)

Term mainly used by OCHA for their anticipatory approach. Predictive Analytics makes use of the increasing availability of data from a variety of sources, together with advancements in statistics and machine learning. The goal is to analyze current and historical data to predict an event or some

characteristic of an event (the probability, severity, magnitude, or duration). (OCHA 2019)

## Probabilistic forecast

A weather/climate forecast that gives information about the expected weather or climate conditions, as well as the probability of those conditions (e.g. 20% chance of at least 10mm of rain tomorrow). This differs from deterministic forecasts, which do not include information on the uncertainty in the prediction.

Also see: Ensemble Prediction Systems

## Probability Threshold

The value of forecast probability at which the chances of reaching the impactlevel are considered high enough to merit forecast-based action. The probability threshold can be defined based on comparing the risk of acting in vain, versus the risk of failing to act. The probability is agreed upon beforehand amongst all stakeholders. For example, we will act when there is a greater than 50% chance that the defined flood water levels will be reached.

## Residual Risk

The risk of impact from a disaster that remains after disaster risk reduction measures are taken. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response and recovery together with socio-economic policies such as safety nets and risk transfer mechanisms.

Note:
FbF can contribute to managing part of this residual risk by funding early actions and preparedness for response actions when a disaster is forecasted.

## Return Period

(Also called recurrence interval)

How often a defined event tends to happen in a set period of time, e.g. 5 times in 100 years is a return period of 1 in 20 years. However, events are not spaced out equally according to the return period (e.g. you can have two consecutive years that have events of 1 in 20 years, but you can also go 40 years without a 1-in-20 year event occurring).

## Short-range weather forecasting

(12-72) hours

## Simulation

Aims to test the viability and timeliness of the early actions in real time. The exercise primarily consists of practical actions, performed by participants who will carry out their roles and responsibilities as assigned in the EAP. As the drill proceeds, an environment is created that is as similar as possible to what would exist in a real situation in the days preceding an extreme event. In a thorough simulation everything from the trigger notification through the selection of communities and channelling of the funds to the distribution to the target population will be tested, which means Hydro-met services, IFRC, local authorities, selected NS branches and communities are involved. However, it is also possible to do simulations as a so-called a desk- or tabletop exercise, in this case they can take place in a single, closed space.

## Social Protection

Social protection is a broad term to describe national and sub-national programmes and policies that aim to tackle poverty, inequality and vulnerability by helping people manage short and long- term risks. This includes:

- Social assistance or safety nets: cash transfers, cash-for-work programs and temporary employment programmes, school feeding programs
- Social insurance: pensions; health, unemployment or disaster insurance
- Labour market interventions: job market integration, job benefits, labor standards
- Social services: social care, nutrition services, disability services

## Stop Mechanism

After triggering, if an updated forecast no longer reaches the trigger (e.g. hazard becomes less likely or less intense), the stop mechanism will be activated. This mechanism refers to plans put in place to stop acting, or to ensure the validity of continuing the activation of the EAP and implementation of the early actions.

## Trigger

A forecast that exceeds a predetermined probability and magnitude, which activates the EAP, and thus an intervention in a specific region. A trigger is defined using an impact-based forecast approach.

See also: Impact level.

## Theory of Change

A comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. It is focused in particular on mapping out what has been described as the “missing middle” between what a program or change initiative does (its actions or interventions) and how these lead to desired goals being achieved.

In FbF, a Theory of Change is an essential tool to select those early actions that have the most potential to reduce the identified risks.

## Verification

Connotes an objective comparison of forecasts and observations to establish accuracy, skill and veracity of the forecast.

## Vulnerability

Can be defined as the diminished capacity of an individual or group to anticipate, cope with, resist and recover from the impact of a natural or man-made hazard. The concept is relative and dynamic.