Step 7: Link impact and hazard magnitude

After having defined what magnitude of impact you want to target, you need to link the impact magnitude with the hazard magnitude, e.g. estimating what windspeed would cause houses to be destroyed. Depending on your availability of data (both impact and hazard), you can simply plot historical events on an x-y axis, with the hazard magnitude (e.g. windspeeds) on the x-axis, the impacts (e.g. houses destroyed) on the y-axis. This is called a “hazard-impact curve” and can help you decide at what level of hazard would be important to use as your trigger, because you know it causes substantial impact.

Approaches to hazard-impact curves

Example 1: Philippines Floods – Simple - Impact data
For floods in Philippines, the analysis of a lot of impact data, such as the price drop of rice crops depending on their reproductive stage and the percentage of crop loss on municipal level that is considered critical in a 5 year return period event are taken into account, depending on the flood level. The Philippines are employing a very impact data driven approach

Example 2: Ecuador Volcanic Ash - Expert estimation
In Ecuador, the impact of volcanic ash is categorized into three main areas: crop loss, damage to livestock, and health effects on people. Estimated impacts for each category are determined by the quantity of volcanic ash present in the region. As a result, three distinct and practical levels of impact have been clearly delineated, providing a structured framework of thresholds. It's important to note that this model relies heavily on expert opinions, with less reliance on empirical and experimental data.

Example 3: Bangladesh Cyclone – Vulnerability data crossed with historical data
In Bangladesh the impact on houses is prioritized, therefore several factors are combined, such as the distance of houses from the coast, the proportion of kutcha and semi-pucca houses and the wind reduction factor to estimate the damage of a certain wind-speed to these houses. This information is crossed with historical data about house destruction. When a storm approaches, the forecasted wind speed is transformed into an exposure map. This map, combined with impact curves, estimates the percentage of houses likely to be affected by the forecasted storm. The result is a map highlighting the percentage of houses at risk of destruction within each union in the exposed district. Priority for intervention is assigned to unions where more than 25% of rural houses are potentially damaged.

Example 4: Mongolia Dzuds – Prior Events
In Mongolia not a lot of data is available on both the forecast and impact aspects, making it difficult to draw definite conclusions about the level of impact. The action threshold defined in the trigger section is derived from analyzing the limited data available for the past few years. It represents our best estimate to identify years when the herder population and provincial government may find it challenging to safeguard herder livelihoods from substantial losses.