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Abstract

Forecast based financing (Fbf) El Niño: the Peruvian Fbf team has set up a **mechanism to elaborate intervention protocols of early action that will be automatically implemented when forecast threshold are reached**. Probabilistic forecast thresholds are combined with early actions in Standard Operating Procedures (SOPs). How?

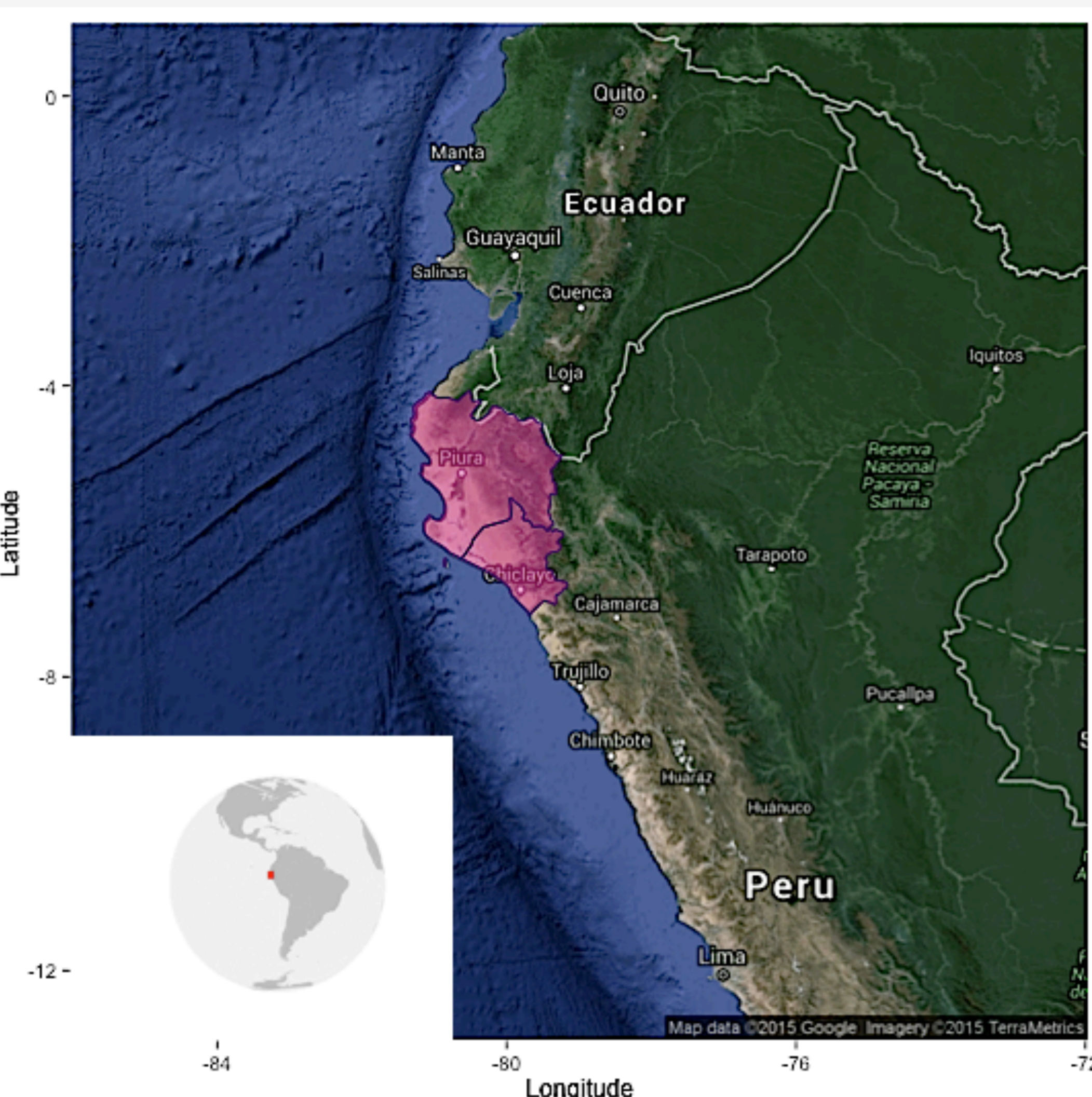
- The project team identified highly vulnerable disaster prone intervention areas (districts and communities) and their priority needs, selecting 12 flood-prone communities.
- In participative regional workshops with Civil Defence, regional governments and representatives of all sectors (housing, agriculture, education, health) those needs have been 'translated' into actions.
- The Red Cross and team designed a comprehensive intervention programme including: early warning, first aid, community based health, drinking water and hygiene promotion, and housing.
- Every set of district-specific actions, identified before hand, will be triggered (and financed) based on a probability that the heavy rain or flood occurs in the selected intervention area.
- For actions that are more expensive, a higher probability of the forecast is demanded, in order to limit the risk of acting in vain.
- If a high threshold is reached, also the SOPs connected to the lower thresholds also come into action.

Concept Fbf

Forecast-based financing mechanism coupled to risk-based operating procedures. Based on the successes and failures of previous efforts to act based on climate-based early warning information, we elaborate **three components** of a system for early warnings to become operational: **(a) information about worthwhile actions, (b) available funding mechanisms, and (c) designated entities that are responsible for taking the pre-planned actions**. A systematic forecast-based financing system integrates each of these three elements, contingent on the availability of (skillful) forecasts for the region in question (Coughlan de Perez et al. 2015).

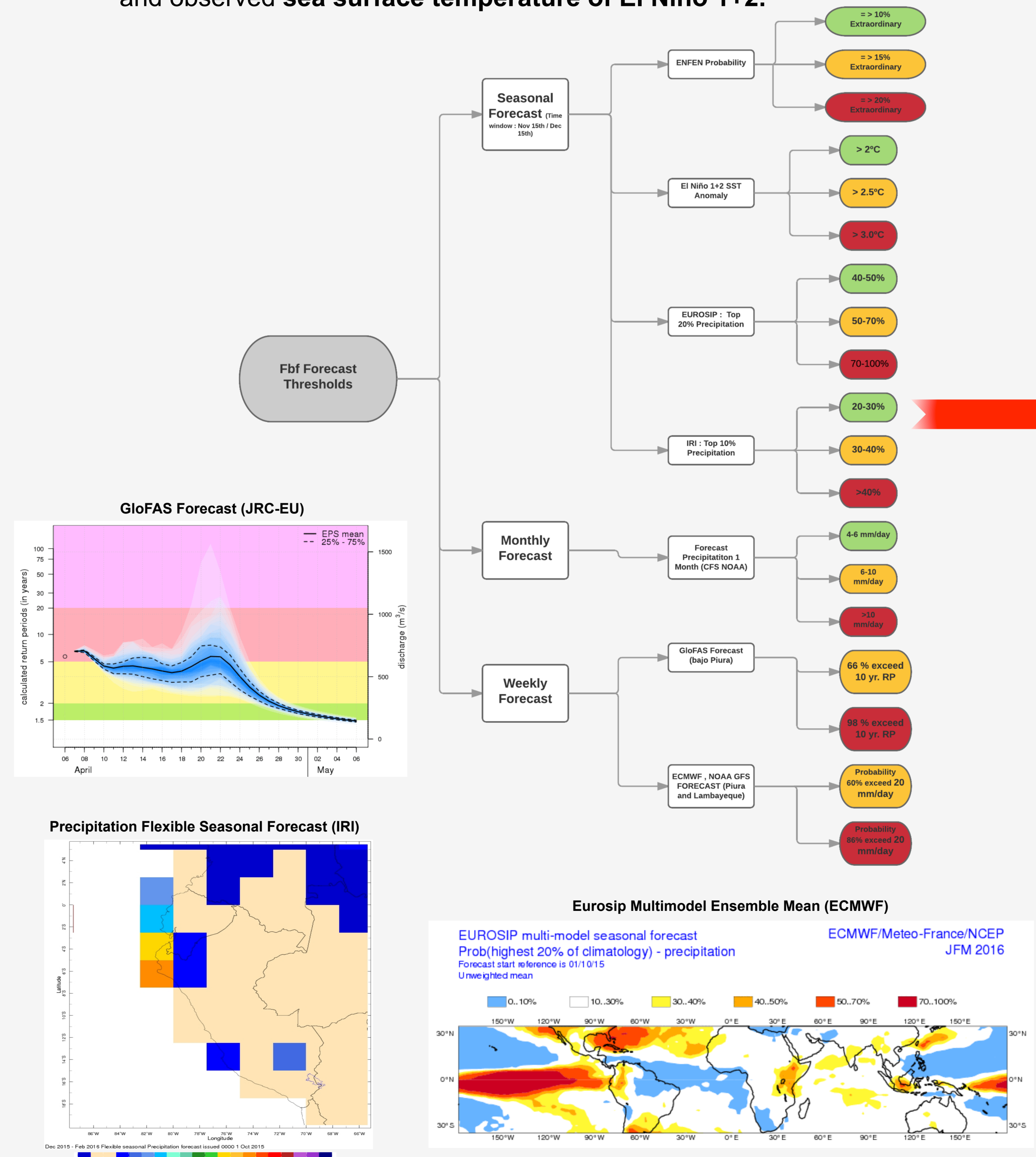
Areas of intervention

The northern region of Peru (Piura and Lambayeque), has the most vulnerability to the El Niño phenomenon. In recent El Niño disturbances decades have resulted in costly damage in the watershed of the Tumbes, Piura and Lambayeque rivers by causing **landslides in steep areas and severe floods downstream**. For instance in 1998, the losses were valued at more than \$ 100 million (CAF, 2000).



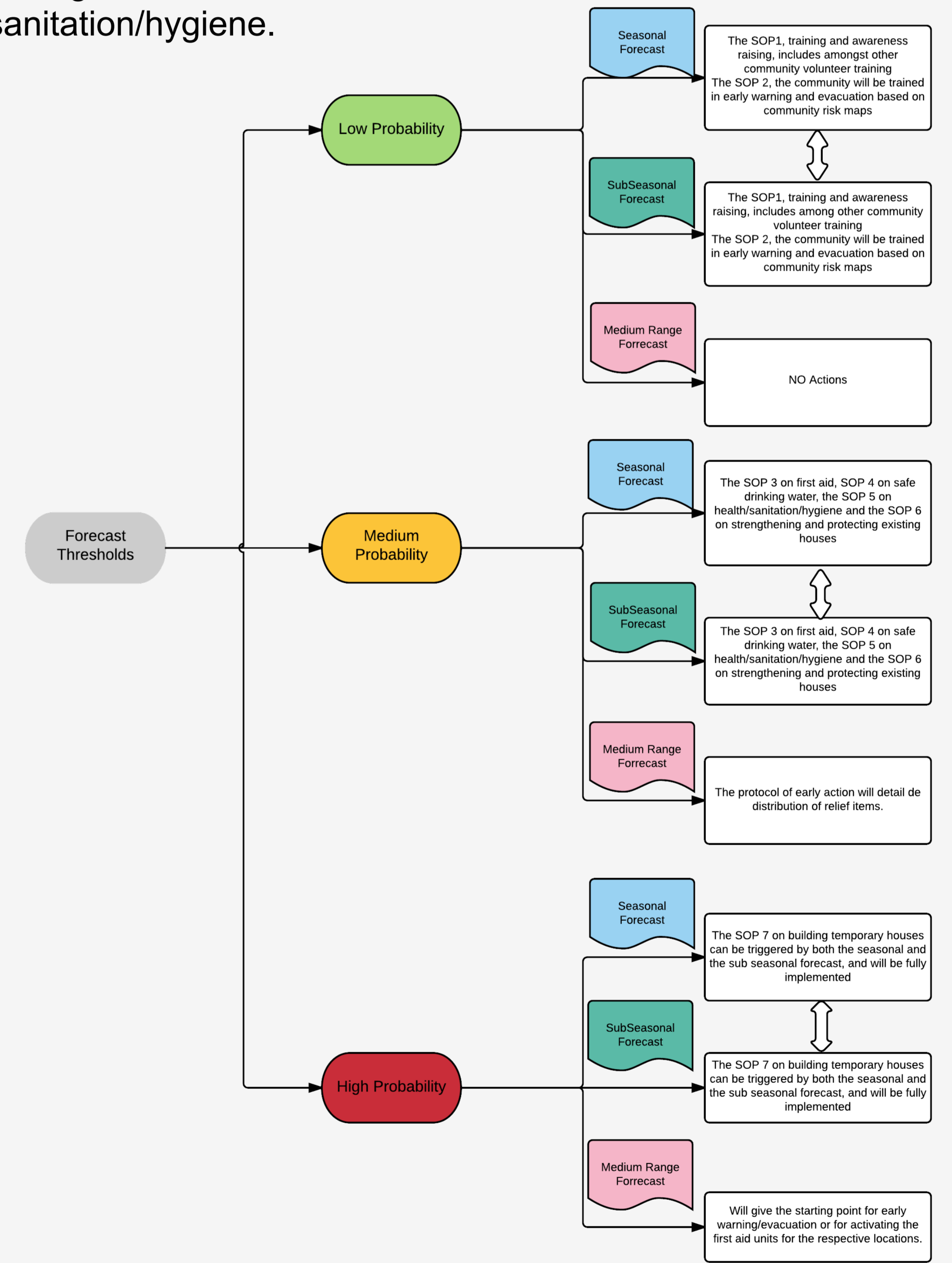
Forecast thresholds

The forecasts thresholds come from **Precipitation Flexible Seasonal Forecast (IRI), The EUROSIP multi-model seasonal forecasting (ECMWF) Climate and Global Forecast Systems (NOAA), Global Flood Awareness System (JCR-EU)**, depending the lead time that we use. **Consensus based El Niño forecast of the Peruvian ENFEN**, and observed **sea surface temperature of El Niño 1+2**.



Early Actions of the SOPs

This **preparedness phase**: The volunteer and staff training, the identification of 'community brigades', carrying out vulnerability capacity assessment on community level, developing the community risk mapping, identification of evacuation roads and safe construction grounds and the preparation of awareness raising materials for the communities in based health and water/sanitation/hygiene.



References

- CAF. (2000). Las lecciones de El Niño. Perú. CAF
- Coughlan de Perez, E. et al : Forecast-based financing: an approach for catalyzing humanitarian action based on extreme weather and climate forecasts, Nat. Hazards Earth Syst. Sci., 15, 895-904, doi:10.5194/nhess-15-895-2015, 2015.

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