Step 1: Set-up a forecast monitoring and activation system

Now that you have developed a trigger, you need to ensure there is a system in place to monitor the forecasts (and/or trigger related indicators) and alert relevant actors when a trigger is reached to initiate the early actions (Section 6.2 in full EAP template). The best option is to develop an automated system that monitors the forecasts, creates an intervention map and sends an automatic alert message to relevant actors. If automation is not possible, you will need to find another way to ensure consistent monitoring.

Ideally, the national meteorological agency or a regional forecasting agency will monitor the forecast. However, national societies have developed different monitoring systems, including the following:

- The national society has access to the forecasting data (e.g. via an ftp server) and processes the data themselves
- The forecast is monitored by the meteorological agency. When a trigger is reached, the Met office communicates the alert and where the trigger was reached to the appropriate actors within the national society (e.g. emergency centre of the national society) for further processing

The meteorological agency or disaster management authority provides an analysis of where to intervene to the national society. Note that in order to harmonise trigger across agencies (e.g. harmonizing with WFP, FAO or other anticipatory action actors) it is helpful if the trigger is owned and monitored by a governmental authority.

Please find an examples of monotoring and activation systems below.

To create a practical forecast monitoring and activation system for their drought EAP, the Somalia Red Crescent Society (SRCS), in partnership with the German Red Cross and HeiGIT, developed a straightforward approach using QGIS.

Case Study: Forecast Monitoring in Action

In Somalia, droughts can have severe impacts on food security. To address this, SRCS needed a way to predict when communities might face critical shortages and activate resources quickly. This led to a system based on two key indicators:

- Drought Conditions: Measured by the Standardized Precipitation Index (SPI-12), which assesses long-term rainfall patterns.
- Food Insecurity: Assessed through FEWSNET's food insecurity projections, a standard tool for monitoring and projecting food access across Somalia.

When these indicators reach specific thresholds – for example, when SPI-12 shows a drought level below -1 and FEWSNET's food insecurity index reaches at least 0.7 – the system signals an activation. This activation allows the SRCS to plan and mobilize resources with a 90-day lead time.

Implementing the System: Key Steps

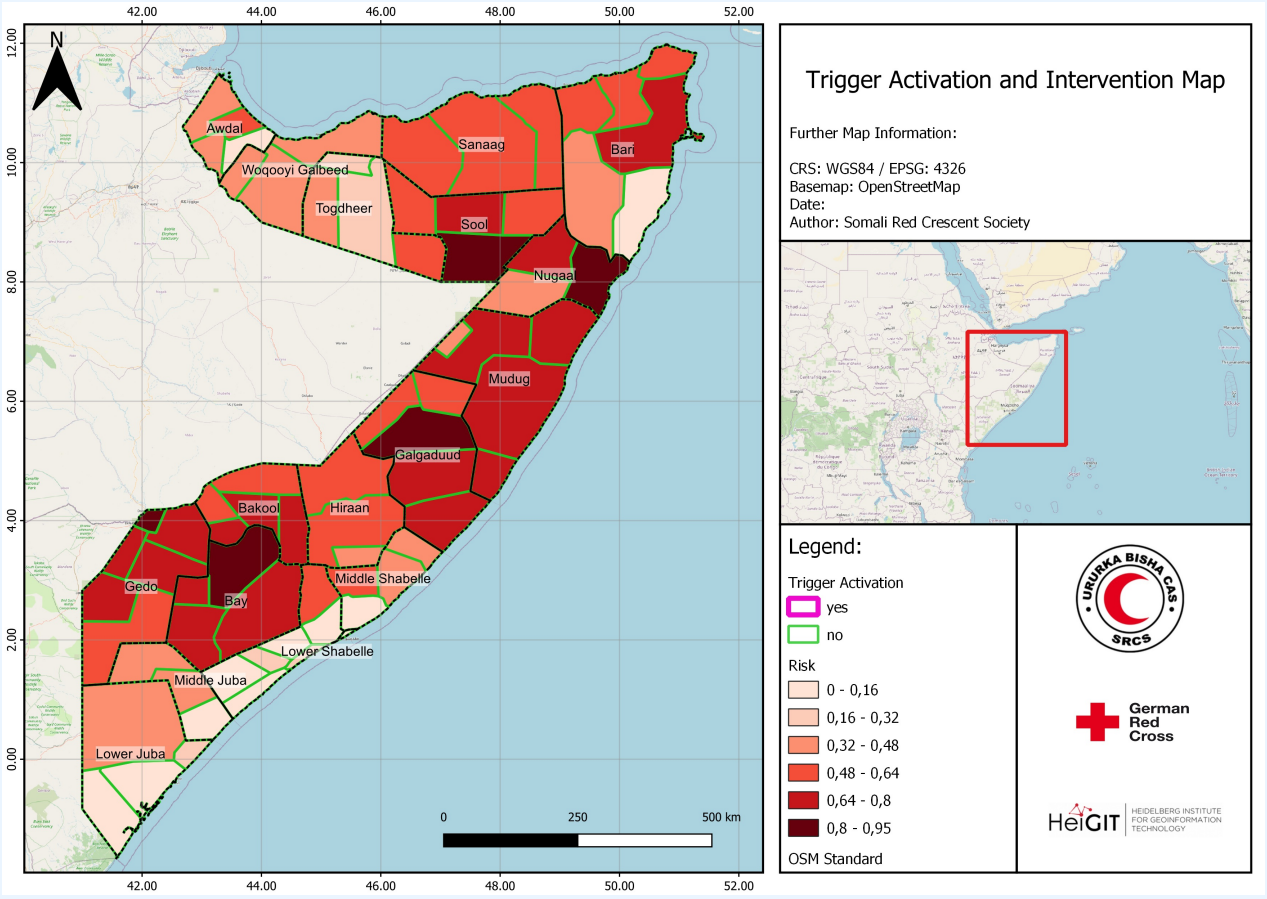
- Setting Up Monthly Folders: Each month, SRCS staff create a new folder with the latest forecast data, using templates to keep records organized. This ensures they are consistently prepared with up-to-date data.
- Gathering Key Data: Staff download SPI-12 data from ICPAC and food insecurity data from FEWSNET. This data is the basis for monitoring drought conditions and food access issues in Somali districts.
- Loading Data into QGIS: In QGIS, a mapping software, team members open a project file and load all the data they need for analysis. This includes district boundaries, population data, and the latest forecasts for drought and food insecurity.
- Running the Trigger Model: With all data loaded, they activate a pre-built model in QGIS. This model processes the data and automatically checks each district to see if the drought and food insecurity thresholds are met. If these conditions are met in a district, the model indicates that the trigger is reached.
- Map Visualization and Sharing: Finally, the team creates a clear visual map that highlights any districts where the trigger is reached. This map, complete with labels and key information, can be saved as an image or PDF for easy sharing with decision-makers.

Impact of the Forecast Monitoring System

Through this system, SRCS can anticipate critical drought-related

food shortages and respond before they reach a crisis level. By visualizing drought and food security risks monthly, SRCS can prioritize districts in need and allocate resources for the most vulnerable communities, ensuring that anticipatory action is implemented on time.

Please find more info on the QGIS workflow here.



Example of trigger activation and intervention map (Source: SRCS and HeiGIT)

Flood Early Action Protocol in Bangladesh – Jamuna River Basin

Background

Bangladesh’s geography and climate, combined with its extensive river systems, make it extremely vulnerable to annual flooding, particularly along the Jamuna River. Floods disproportionately impact low-income populations living in low-lying areas with fragile housing and high dependency rates. The direct effects of these floods include loss of life, spread of waterborne diseases, infrastructure destruction, and significant agricultural and livestock losses. The economic cost of floods is substantial, with the 1998 flood losses reaching $2 billion, equivalent to 6% of the national GDP.

Early Action Protocol (EAP) Objectives

The Early Action Protocol (EAP) by the Bangladesh Red Crescent Society (BDRCS) aims to reduce the impact of flooding by implementing proactive measures based on forecasts. This protocol is focused on safeguarding lives, protecting livelihoods, and minimizing household asset loss in flood-prone regions, particularly along the Jamuna River. The EAP’s primary goals are:

- Reducing Human Casualties through early warnings, evacuation support, and provision of first aid.
- Minimizing Livelihood Losses by protecting livestock, crops, and other essential resources.
- Preserving Household Assets by providing cash grants to enable families to make preventive and recovery efforts.

Core Components of the EAP

- *Unconditional Cash Grants*
  Targeting 4,200 vulnerable households, the cash grants provide essential financial resources to support early preparations and recovery, including food purchases and livestock protection. Studies have shown that these grants help families reduce livestock losses and avoid negative coping mechanisms like selling household assets.
- *Evacuation Support by Boat*
  The EAP provides evacuation services for families at high risk of being stranded by floodwaters. This includes mobilizing boats to help 200 families relocate to safer areas, reducing the risk of drowning and other flood-related hazards.
- *Early Warning Dissemination*
  An effective early warning system is in place to alert communities to upcoming floods, giving them crucial lead time to take protective actions. The dissemination of warnings is coupled with instructions on evacuation procedures and safety measures to

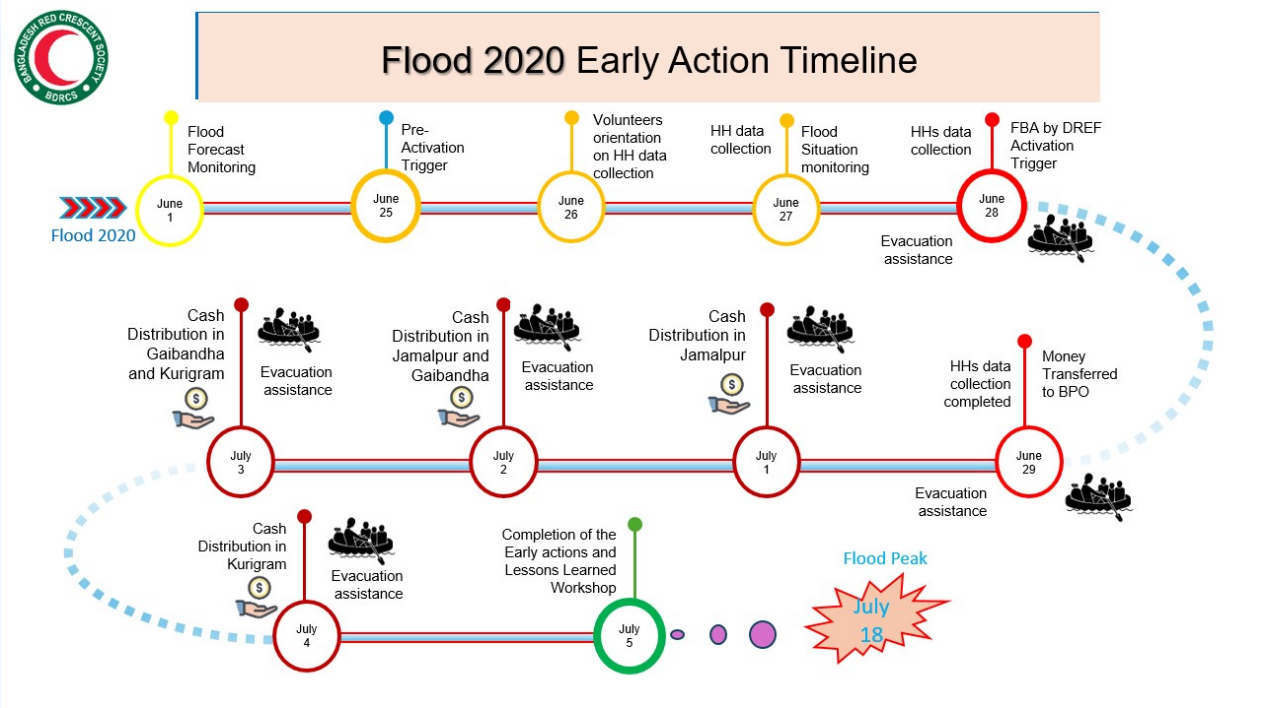
increase community preparedness and responsiveness.

- *Basic First Aid Provision*
  First aid resources are available to address immediate health needs arising from the flood. This includes care for injuries, snakebites, and initial treatments for waterborne diseases, aiming to reduce health risks among displaced and affected populations.

Implementation Strategy and Geographic Scope

The EAP is executed with a focus on the most vulnerable districts within the Jamuna River Basin, covering 3-4 districts. Early actions are triggered by the Flood Forecast and Warning Centre (FFWC) and global forecast models, which monitor water levels to predict the likelihood and severity of floods. Upon reaching the danger level, the EAP activates its protocol, facilitating timely intervention in at-risk areas.

Please find the summary of the EAP here.



Source: BDRCS