

4.4 Simulate

Summary

Once the development of an EAP has been finalized, it needs to be put to the test to ensure the early actions identified are feasible in the lead time foreseen and roles and responsibilities in case of an activation are clear. Simulations and drills are crucial to testing the effectiveness of plans, protocols, guidelines and the capacity of those responsible for carrying out early actions. This chapter outlines two types of approaches available, applications of both to FbF EAPs, and steps necessary for their implementation. The guidance material presented below has been adapted from the Pan American Health Organization Guidelines for Developing Emergency Simulations and Drills (PAHO, 2011).

Simulations, drills - why use them?

Simulations and drills move FbF from theory to practice. They allow National Societies, government authorities, humanitarian organizations and communities to test, evaluate and refine the Early Action Protocol. Both allow all those involved to better understand their roles and responsibilities in the event of an activation and build trust between individuals and teams. For EAPs submitted to the FbA by the DREF proof is required that the early actions proposed are feasible in the short time between forecast and event, simulations and drills are a good way of showing this.

Besides increasing understanding of FbF in general and the specific EAP in particular, simulations directly support the overall operational capacity of the National Society by learning from the results of these exercises and incorporating learning into future preparedness and response planning (PER component: Testing and Learning). Branches especially in high-risk areas should frequently test FbF early actions through drills and simulations. Only if the volunteers and staff are trained and know exactly what to do before the extreme event strikes, can they fulfil their responsibilities. Furthermore, the simulations enhance the awareness of humanitarian actors to be better prepared and act rapidly to avoid a disaster from happening. It needs to be emphasized that enhanced disaster preparedness at community level requires a paradigm shift from reactive to preventive, thus training exercises play a fundamental role.

In a thorough simulation of an EAP, everything from the trigger notification through the selection of communities and channeling 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 should be involved in the exercise.

Objectives of simulations

- Evaluate the decision-making capacity of staff and volunteers responsible for implementing the early actions outlined in an Early Action Protocol.
- Validate the Early Action Protocol and its assumptions.
- Test the coordination mechanisms of internal and external stakeholders with a role in the EAP.
- Prepare those with decision-making authorities to manage relevant aspects of the EAP during activation.

Objectives of drills

- Test the feasibility, viability and timeliness of the early actions.
- Identify possible challenges in coordination among stakeholders involved.
- Evaluate abilities and the use of techniques, tools, resources, and actions related to the implementation of the Early Action Protocol.
- Fully include and train volunteers and branches in EAP activation.
- Assess general response of a sample community to the early actions foreseen.
- Gain insights for EAP revision.

Key differences between simulations and drills

Methodological

Simulation:

- It is a theoretical exercise, also called a desk- or tabletop exercise since it can take place in a single, closed space, or among several interconnected sites.
- It is built from a scenario and a script that define the activities, the flow of information, and the roles played by the participants.
- Each of the participants is assigned a role that can be based on his or her normal work, or another role.
- The development of events takes place in simulated time identified in the script. This is controlled by the simulation's coordinating team.
- Each plot of a scenario takes place in a relatively short period of time, so "time jumps" are used.
- The planned scenario, which includes different situations, problems, and resources, is played out sequentially in a way that advances the exercise.
- The time required for the simulation includes time for preparation, identification or review of roles, analysis of information gathered before the exercise, a reasonable amount of time to resolve different situations, and time needed for evaluation

Drill:

- The drill takes place in real time.
- The exercise primarily consists of practical actions, performed by participants who will carry out their assigned roles and responsibilities in the EAP
- As the drill proceeds, an environment is created that is as similar as possible to what would exist in a real emergency situation.
- Time “jumps” are not allowed in carrying out actions that correspond to one scenario.

Operational**Simulation:**

- Information is provided through messages distributed at different times in exercise; they can be transmitted orally, in print, or digitally, among other ways.
- Conditions similar to what might exist in a disaster situation can be created. For example, by causing noise, manipulating lighting and temperature, interrupting services (water, light, communications), creating uncertainty, and providing contradictory or incomplete information, among others.
- The controller has the current information about the scenario. If necessary, he or she can assume roles of participants that are not represented in the situation described.

Drill:

- Characters and materials used are real except for performers acting as victims, bystanders, journalists, or other roles that are considered necessary for the exercise
- The execution of drills may involve a degree of risk for participants and observers, so there must always be an emergency plan for the exercise itself
- The exercise will be interrupted immediately if a situation creates real danger for the participants

Considerations for planning a drill/simulation**For Simulations:**

- Decide the structure of the team (and designate roles (coordinator, design team, controller, evaluators and logistics) should be formed to organize and carry out the simulation under the supervision of a Coordinator.
- National Society should put together an initial plan outlining the objective of the simulation, the scope, the audience, a timeline and a budget.

- Determine logistical requirements, the organization and development of a simulation and more so of a drill require physical space, equipment and furniture, exercise materials, transportation, supporting materials, communications equipment...etc.
- Document and integrate lessons learned as required

For Drills:

- Identify appropriate site for the drill.
- Notify all participants and non-participants well in advance



The terms ‘drills’ and ‘simulations’, especially with the context of FbF, are in practice often used interchangeably. For example, many National Societies prefer to refer to a “drill” as a “simulation”, and to a “simulation” as a “tabletop exercise”.



Example Philippine Red Cross:

Reaping rewards: early harvesting of abaca trees in Typhoon Tisoy



© PRC

The Philippine Red Cross (PRC) is well-versed in FbF simulations. In 2019, the **Philippine Red Cross** (PRC) organised three simulations to test the Typhoon EAP early actions, namely: early harvesting of abaca trees in Catanduanes Island, shelter strengthening in Aurora Province, and

livestock evacuation in Davao Oriental Province.

PRC Tabletop + Drill Format

Although the early actions tested varied, the three-day training format for all province PRC Chapters remained the same:

Day 1

The first day is used for a tabletop exercise to review what must be done by the Chapter to simulate the moment the Chapter receives the alert message on day -4 (4 days prior to typhoon landfall).

Day 2

The second day the PRC employs a drill, which covers the early actions to be taken on day -3 and day -2.

Day 3

The final day is reserved for a thorough debriefing of the simulation exercise.

For each simulation exercise, PRC encourages additional Red Cross chapters to join to boost learning and EAP capacity, as well as invites provincial government partners. Large groups of participants are split into several communities on the second day of the exercise to apply their early actions in an activation scenario.

Each simulation requires ample preparation prior to the exercise taking place. It is crucial that this activity is jointly planned with all involved agencies at the province level at an early stage (at least a month prior).

The criteria below represents the minimum PRC preparation components:

- A Typhoon scenario as close to reality as possible
- Key target areas/venue
- Engagement of all agencies and participants needed to execute all EAP roles and responsibilities
- Resources (transport, material, volunteers, etc.)

Read the PRC 2019 Simulation Report [here](#), for a complete overview of PRC's approach.

Practicing simulations has yielded significant benefits for the PRC. According to FbF Delegate, Damien Riquet, "The simulation was a great help in enabling the Catanduanes PRC chapter to activate early actions December 2, 2019 prior to the landfall of Typhoon Tisoy. In past storms, when Abaca trees were destroyed, this not only meant significant losses for farmers, but also a continuous lack of income for those workers normally employed for processing the fibres.

PRC volunteers were on their own as our team didn't manage to reach the island three days before typhoon landfall. However, the Catanduanes chapter took full agency of their early actions, and executed everything as planned: 5 barangays (communities) were selected with Caramoran

municipal authorities, and volunteers were deployed to each of them to (i) recruit 20 workers, (ii) validate the list of the farms that should be assisted in early harvesting of abaca trees, and (iii) supervise the early harvesting of matured abaca trees in the selected farms. Although coordination with provincial authorities could have been a bit better, the volunteers applied the learnings from the simulation exercise – and even tested leaf trimming for the young abaca trees.

Aside from the importance of training chapters, authorities and volunteers, simulation exercises are very important to validate some of the assumptions we make in the EAP: like the time needed to strengthen houses with Shelter Strengthening Kits, how best we can orient workers and beneficiaries, how to do the registration of animals being evacuated, etc. All these learnings can be only gathered through real time testing (and if we don't have a typhoon to do activation, it is best to do simulations)".

Alejandro Terán talks about the importance of drills and simulations and his experiences with Volcanic Ash exercises in Ecuador:

Video: <https://www.youtube.com/watch?v=axBlr8pCWDk&t=110s>

Step 1: Plan the drill/simulation

Establish the type of exercise (simulation vs. drill) and date in a first coordination meeting with the key partners. The crucial partners for the testing of early actions include the FbF coordination team, government authorities (e.g. National Hydromet Services, Disaster Management and relevant sectoral departments), volunteers of the respective branches, community members, IFRC offices and relevant partner organizations. Define scope, objectives, target audience and timeline, budget, inter-institutional coordination and technical fact sheet. The drill/simulation should resemble the conditions of a real-time activation as closely as possible. Thus, if an EAP contains more than one type of early actions, all of them should be tested. Similarly, in line with FbF's flexible approach, communities participating in the simulation should be selected only once a (simulated) forecast is received and funding for relief items to be procured upon activation should only become available once a trigger notification has been sent.

Step 2: Design and script the exercise

Plan and design the components of the exercise, including events, tasks and available resources. The scenario for the simulation exercise needs to include specific instructions for relevant stakeholders e.g. National Hydromet Services, National Society HQ, local DRR committee.

The development of strong guidance material for the implementation of the simulation/drill exercise cannot be underestimated. The “simulation script” should reflect all realistic and expected situations encountered in the EAP activation to test the appropriateness of chosen early actions, roles and responsibilities and procedures. It should ideally cover all steps from receiving the forecast that confirms the trigger is hit, to requesting the funds, selecting the communities and target households and implementing in the community.

A suggested timeline for preparation of drills may be found [here](#).
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Step 3: Organize

In addition to the script, general organization is required. This includes ensuring logistical requirements are met, i.e. materials, space equipment, communication systems, transport/accommodation/budget are available. Select participants, evaluators and observers in line with roles and responsibilities allocated in the EAP.

Step 4: Test EAP in simulation or drill

The coordinator of the drill or controller will explain the methodology and roles prior to activation of the exercise. The script will drive the sequence of events, messages and situations/challenges, from which participants will take decisions. The controller may intervene if actions or decisions do not reflect a real early action scenario. Evaluators and observers should be located within the area of the exercise, but shall not interrupt the simulation.

Step 5: Evaluate & document

The evaluation of the drill/simulation provides an opportunity to identify challenges, recommendations and solutions to ensure a strong EAP. Evaluation and monitoring of the effectiveness of early actions is key to ensuring lessons are learned. The monitoring can be conducted by project staff or by technicians from partner organizations. Monitoring and evaluation sheets (same as for an actual activation) may be found [here](#).
..... Ideally observations and lessons learned should be discussed and shared in a one-day or half-day workshop right after the simulation, to ensure perspectives and remarks of all stakeholders involved are taken into account.

Step 6: Revise EAP if necessary

If your simulation or drill has shown that certain assumptions, timelines, procedures, or arrangements of your EAP are not realistic or feasible, revise the EAP accordingly. Ensure that your EAP integrates lessons learned of the drill or simulation.

See examples from FbF projects

Simulation of Cyclone EAP in Bangladesh 2019









Simulation of Volcanic ash fall EAP in Ecuador 2019

Video: <https://www.youtube.com/watch?v=RYkvxmwZPxo>

Toolbox

-  For Spanish speakers the Practical Guide on Simulations and Drills of the Centro de Referencia en Preparación para Desastres (CREPD) can offer valuable guidance.
 -  FbF Typhoon EAP Simulation Exercises Report
 -  Guidelines for developing emergency simulations and drills
 -  National Society Preparedness for Effective Response
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