Training Manual

On

Impact-Based Forecasting and Anticipatory Action for Provincial and District Implementation

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1. Introduction

This brief manual provides a practical learning resource for translating forecasts and early-warning information into decisions and timely, coordinated actions before a hazard causes severe impacts. It has been prepared around the ADRF Grant funded by Asian Disaster Preparedness Center (ADPC), and implemented by Promoting Resilient Preparedness (PRP). NDMA being the Co-Chair of PRP, facilitated this whole process of consultation, preparation of the document. The manual also reflects the National Disaster Risk Reduction Strategy (NDRRS) 2025-2030, which promotes proactive, technology-supported and inclusive disaster risk management; coordination among NDMA, PDMAs and DDMAs; stronger early-warning systems; anticipatory action; community-based preparedness; and continuous monitoring, evaluation and learning.

2. Learning Objectives

By the end of a training session using this manual, participants should be able to:

- Explain the difference between a hazard forecast, an impact-based forecast, an early warning and anticipatory action.
- Interpret forecast information alongside exposure, vulnerability and local risk data to identify who and what may be affected.
- Identify decision points and agree practical, locally appropriate triggers for early action using authorized information and existing protocols.
- Describe the respective coordination responsibilities of national, provincial, district, tehsil/Union Council and community-level actors.
- Develop a concise action matrix linking forecast information, trigger, responsible institution, action, deadline and communication channel.
- Identify inclusion, safeguarding, access and accountability considerations when communicating warnings and implementing early action.

3. Core Concepts

a) Hazard forecast

A hazard forecast estimates the likelihood, timing, location or intensity of a potential event for example, heavy rainfall, river flooding, extreme heat or a glacial lake outburst flood. A forecast describes the hazard; on its own, it does not fully explain the likely consequences for people, services and livelihoods.

b) Impact-based forecasting (IBF)

Impact-based forecasting combines hazard information with exposure and vulnerability information to communicate the likely consequences of an event. It helps decision-makers move from “What weather or hazard may occur?” to “What could happen, where, to whom, and what should be done?”

c) Anticipatory action (AA)

Anticipatory action means taking agreed measures before a forecast hazard produces its expected impacts. Actions are linked to agreed forecast triggers, decision authority, operational procedures and available resources. Examples may include disseminating targeted warnings, checking evacuation routes, moving people or livestock from high-risk locations, protecting essential supplies, and preparing health, water, shelter or education services.

d) Triggers and SOPs

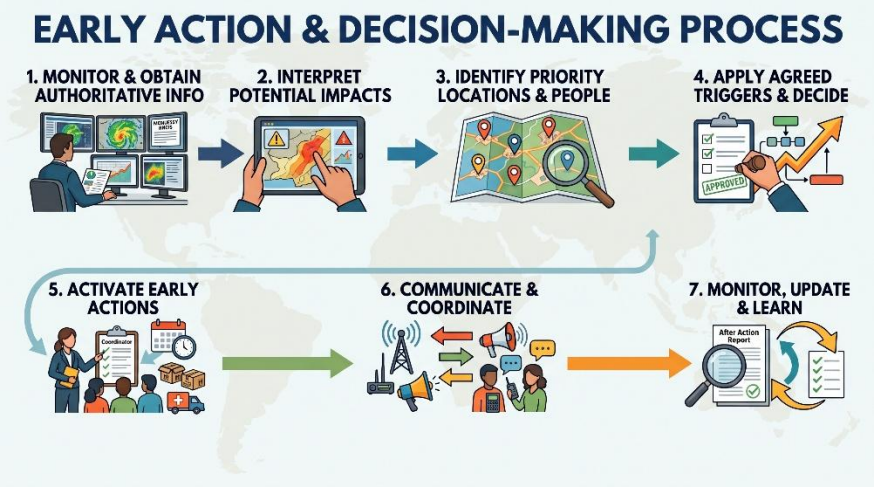
A trigger is an agreed condition or threshold that prompts a decision or action. Triggers should be based on authoritative forecasts, local risk information and institutional procedures. This manual does not prescribe numerical thresholds: these must be agreed by the competent technical authorities and documented in the applicable SOPs.

e) Last-mile warning

A warning is useful only when it reaches exposed people in a language, format and timeframe they can act on. Communication plans should account for mobile coverage, literacy, disability, age, gender-related barriers, displacement, remoteness and people who may not use digital channels.

4. The Impact-to-Action Workflow

- **Monitor and obtain authoritative information:** Use the relevant official forecast, alert, situation update and technical briefing. Confirm issue time, valid period, location, uncertainty and source.
- **Interpret the potential impacts: Combine** the forecast with available risk, exposure and vulnerability information, including e-MHVRA/Union Council-level information where available, local observations and sector data.
- **Identify priority locations and people:** Determine which settlements, roads, health facilities, schools, water systems, livelihoods and groups may be affected. Record key data gaps and uncertainty.
- **Apply agreed triggers and make a decision:** Compare the information with approved trigger criteria and SOPs. Escalate decisions to the designated authority; record the rationale and decision time.
- **Activate early actions:** Assign each action to a named institution or focal point, with a deadline, resources and a means of confirming completion.
- **Communicate and coordinate:** Issue consistent messages through agreed channels; confirm receipt between agencies and obtain feedback from local authorities and communities.
- **Monitor, update and learn:** Track forecast updates, action completion, changing risk and community feedback. Document what worked, what did not, and improvements required.



5. Roles and Coordination at Different Levels

Exact mandates and decision authority must follow applicable law, official protocols and approved SOPs. The following is an operational guide to support role clarity, not a replacement for formal mandates.

Level / actor	Key contribution	Operational questions
National/ NDMA-NEOC and technical agencies	Monitor hazards, interpret forecast products, provide technical guidance and coordinate national-level information.	What is forecast? What is the expected impact? Which areas and time window are affected? What updates are needed?
Provincial / PDMA and provincial departments	Relay and contextualize warnings, coordinate provincial readiness, support districts and align resources with the forecast risk.	Which districts need readiness measures? Who leads each action? What support or escalation is required?
District / DDMA and district administration	Validate local exposure information, activate district contingency arrangements, coordinate line departments and communicate with local authorities.	Which settlements and services are at risk? Which actions can start now? Who confirms completion?
Tehsil / Union Council and local services	Pass warnings to local focal points, identify access barriers, support safe movement and report local conditions.	Have the right communities received and understood the warning? What immediate obstacle needs escalation?
Community organizations and local leaders	Share locally understood messages, identify people needing assistance, report conditions and provide feedback.	Who may be missed? Are routes and shelters accessible? Is the message trusted and actionable?

6. Converting a Forecast into an Action Plan

Use the following action matrix during coordination meetings, simulation exercises and SOP development. Complete it using current official forecasts and locally approved procedures.

Forecast Source	Expected impact & location	Trigger decision point	Agreed early action	Lead & supporting actors	Deadline confirmation
Official heavy-rain flood forecast; record issue time and validity	Illustrative: low-lying settlements, access roads and water points may be affected	Use the threshold and decision rule approved in the relevant SOP's	Verify priority locations; disseminate targeted warning; check evacuation routes/locations	As assigned in provincial/district SOP; identify named focal points	Specify time; record message delivery, readiness checks and unresolved gaps

7. Practical Exercise: Tabletop Flood Scenario

Purpose: Practice forecast interpretation, trigger-setting discussions, coordination and documentation. Scenario lead shares a fictional official-style forecast with issue time, valid period, affected area and uncertainty clearly marked as exercise data.

- Participants identify likely impacts using a simple map or local risk profile: settlements, roads, health facilities, schools, livelihoods and groups needing additional support.
- The group checks the relevant SOP and identifies the designated decision-maker, trigger criteria and escalation route.
- Participants complete the action matrix with actions, leads, supporting agencies, deadlines, communications and verification.
- The group tests warning dissemination: SMS/mobile channels where available, local media, community networks, accessible formats and two-way confirmation.
- The facilitator introduces a change (e.g., forecast area shifts or a road becomes inaccessible). Participants update priorities and record the reason for changes.
- The group conducts a short debrief: what was decided, what information was missing, what delayed action and what should change in the SOP?

8. Inclusion, Safeguarding and Accountability

- Disaggregate exposure information where feasible and lawful; consider women, children, older people, persons with disabilities, displaced people and marginalized communities.
- Use clear local-language messages that state the hazard, affected place, expected timeframe, practical action and where to obtain verified updates.
- Do not assume everyone has a mobile phone, internet access, transport, money, mobility or the same ability to evacuate.
- Identify safe and accessible routes, shelters and assistance arrangements; protect personal and sensitive data.
- Provide a channel for questions, correction of information and complaints. Do not publish unverified names or sensitive vulnerability information.
- Engage trusted local organizations and community representatives while ensuring that assistance and warnings are not captured by local elites or restricted to well-connected groups.

9. Monitoring, Documentation and Learning

Record the process as well as the outcome. Suggested training and operational measures include:

- Number and type of participants trained, including representation of relevant provincial, district and sector actors.
- Pre- and post-training assessment results on forecast interpretation, impact analysis, triggers and coordination roles.
- Percentage of exercise actions with a named lead, deadline and verification method.
- Time taken in the exercise to acknowledge a warning, reach a decision and communicate assigned actions.
- Number of gaps identified and assigned for follow-up in protocols, SOPs, data, resources or communication channels.

- Evidence that community feedback and inclusion considerations were reflected in messages and action plans.
- Lessons learned, action points, responsible persons and due dates, to inform NEOC operational planning and future exercises.

10. Quick-Use Checklist

- Forecast source, issue time, validity and affected area verified.
- Likely impacts assessed using exposure, vulnerability and local risk information.
- Priority locations and people requiring additional support identified.
- Approved trigger and decision authority checked; uncertainties recorded.
- Actions, leads, deadlines, resources and confirmation method agreed.
- Provincial-to-district and district-to-community communication channels tested.
- Warnings are understandable, accessible and actionable; receipt is confirmed where possible.
- Updates, decisions, actions, gaps and lessons are documented.



11. Key Messages for Participants

- A forecast becomes operationally useful when it explains expected impacts and supports a decision.
- Anticipatory action depends on agreed triggers, clear authority, pre-identified actions and timely coordination.
- Provincial and district actors need a shared understanding of the forecast, local exposure and the actions each institution is expected to take.
- Warnings must reach last-mile communities in time and in a form that people can understand and act upon.
- The process should be rehearsed, documented and improved through simulations, after-action review and continuous learning.



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