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FROM RECEIVING A WARNING TO TAKING ACTION: AN INCLUSIVE COMMUNITY PREPAREDNESS FRAMEWORK

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Abstract

Background: Receipt of a hazard warning does not establish understanding or the practical ability to act. **Aims:** To develop an inclusive community preparedness framework connecting receipt, interpretation, feasible action, and feedback. **Review Method:** A purposive reading of three official disaster risk and accessibility resources informs conceptual design. No community drill, hazard map, route inspection, or participant dataset was analysed. **Results and Conclusion:** The framework links authorised messages to accessible explanation, assistance responsibilities, and review of unresolved barriers. It separates communication reach from feasible response and proposes safe tabletop assessment. **Contribution:** The article provides a diagnostic model, an illustrative exercise, process indicators, and testable propositions. It offers no operational evacuation instructions or claims about losses prevented.

Keywords: disaster preparedness; inclusive warning; community resilience; accessibility; action feasibility.

1 INTRODUCTION

A warning can arrive on a device while leaving its recipient uncertain about the affected location, expected action, or available assistance. Some recipients may understand the message yet be unable to act because of mobility, caring responsibilities, communication barriers, or unavailable transport. Effective preparedness therefore requires examining more than delivery.

The Sendai Framework establishes a broad disaster risk reduction agenda that includes governance, preparedness, and shared responsibility (United Nations Office for Disaster Risk Reduction [UNDRR], 2015). The Early Warnings for All initiative focuses attention on protection through warning systems (United Nations, n.d.). This article contributes an analytical design that traces the transition from receiving a message to being able to take an authorised action. It provides no hazard-specific forecast or operational evacuation instruction.

2 CONCEPTUAL FOUNDATION

Warning reach is defined as receipt among the intended population under a stated condition. Interpretation concerns whether a recipient can explain the message. Action feasibility concerns whether the authorised response can actually be carried out with available support. These are different constructs: a message can be understood while the required action remains impossible. A programme that combines them into one success count may miss the support problem.

UNDRR (2015) supplies the disaster risk governance context, and the United Nations Early Warnings for All initiative focuses attention on protection through warning systems. WCAG 2.2 provides a reference for digital content accessibility, not certification of an entire preparedness arrangement (W3C, 2023). The conceptual step taken here is to connect each stage with a diagnostic question and a responsible support role. Operational decisions remain with competent local authorities.

Table 1. Proposed operational definitions

Construct	Meaning in this article	Observable example
Receipt	A message reaches the intended recipient through a usable route.	Exercise record with a defined intended population.
Interpretation	The recipient can explain location, time, uncertainty, and requested action.	Plain-language explanation in an appropriate format.
Feasibility	The authorised action can be undertaken with available assistance.	Barrier review with the responsible local role.
Feedback closure	A reported barrier receives an accountable response.	Issue record linked to a decision or support arrangement.

The definitions in Table 1 specify the analytical objects for this framework. They are proposed working definitions rather than established measurement scales. A future study should examine whether participants and assessors interpret them consistently before combining them into a score.

3 REVIEW APPROACH

Official resources were selected purposively for complementary purposes: disaster risk governance, warning-system objectives, and accessibility of digital information (UNDRR, 2015; United Nations, n.d.; World Wide Web Consortium, 2023). Publication details and available official content were checked online. The analysis separated four questions: Was the message received? Was its meaning understood? Was the requested action feasible? Could the recipient communicate a barrier?

This is conceptual framework development rather than a systematic review or operational safety assessment. No local hazard maps, route inspections, household records, or drill results were analysed. Application in Indonesia would require locally competent disaster management authorities and relevant community representatives. The proposed framework cannot establish that a location, route, shelter, or procedure is safe.

Table 2. Documentary corpus and analytical role

Source	Type	Role in the synthesis	Inference limit
UNDRR 2015	Disaster risk framework	Governance and preparedness context.	Not validation of a local route or shelter.
United Nations undated	Early Warnings for All initiative	Context for people-centred warning protection.	Not an operational protocol for this exercise.
W3C 2023	Digital accessibility recommendation	Reference for checking digital message content.	Does not certify whole-system safety or accessibility.

The analysis proceeds from construct definition to a proposed sequence, followed by consideration of failure conditions and measurement choices. Source statements supply context; the sequence, tables, examples, and propositions are analytical proposals developed in this manuscript. No search-completeness count, independent coding agreement, or causal estimate is reported. References should be checked against the full original documents during author review.

4 INTEGRATED CONCEPTUAL FRAMEWORK

Receipt is the first component, but it needs a defined population. Counting messages sent does not show who was missed. A preparedness exercise could identify whether intended participants received an approved fictional message through their usual channels, without treating non-response as proof of refusal.

Interpretation requires a separate check. Participants can explain the location, time, uncertainty, and action described in the message using their own words. A familiar symbol may still be misunderstood. An explanation check is intended to reveal ambiguity before an emergency, not to rank recipients by intelligence or blame them for communication failures.

Table 3. Proposed sequence and responsibilities

Stage	Task	Responsible role	Expected evidence
Reach	Check intended recipients and channel dependencies.	Authorised communication role	Defined population and exercise receipt record.
Explain	Check meaning without assuming familiarity with symbols.	Facilitator and recipient	An accessible explanation check.
Enable	Identify barriers and the role responsible for assistance.	Competent local authority with community input	Feasibility review; no unverified safety claim.
Learn	Record barriers, decisions, and remaining uncertainty.	Preparedness coordinator and oversight role	A traceable response and review date.

Table 3 links each stage to a responsibility and an observable record. The sequence is intended to expose a missing connection, rather than imply that completing a form guarantees an outcome. Movement between stages may be iterative. Where an essential condition is absent, the appropriate decision is to repair that condition or narrow the scope before expansion.

5 OPERATING MECHANISMS

The next component asks whether the recipient could carry out the authorised action under plausible constraints. This is a planning question to be resolved with responsible local authorities. A person who understands a message but needs assistance represents a support requirement, not a communication success.

A proposed assistance record stores only the minimum information required to arrange support, with appropriate consent and access controls. It should identify the responsible role and a way to verify that an arrangement remains current. A broad public list of vulnerable households could create privacy risks; a public overview and restricted operational information should therefore serve different purposes.

Table 4. Mechanisms proposed for examination

Mechanism	Analytical function	Required condition
Separated diagnosis	Identifies whether the problem concerns reach, meaning, or support.	Each stage has an observable and distinct check.
Responsible assistance	Connects an understood warning with practical capacity to act.	Competent roles review arrangements before emergencies.
Dependency awareness	Tests whether apparently multiple channels fail together.	Planning considers shared device, power, and network requirements.

A fictional tabletop exercise presents an authority-approved sample warning for an invented location. Participants explain what area is affected, what action is requested, and which details remain uncertain. The exercise then introduces a person who understands the message but needs assistance. Teams identify the responsible role and the unresolved planning question rather than inventing an evacuation route.

A second scenario makes the usual network unavailable. Sending the same message through two applications on the same disconnected device does not resolve the dependency. Participants examine whether another authorised and accessible route exists. The exercise stops at planning and explanation; it does not conduct an evacuation or assert that a shelter is safe. These hypothetical situations illustrate the framework and are not drill findings.

6 PROPOSITIONS FOR EMPIRICAL TESTING

The propositions below describe relationships that a future study could examine. Their numbering supports discussion and does not indicate a hierarchy of importance. They are not hypotheses tested by this manuscript, and no effect size or statistical significance is implied.

P1. Warning comprehension is more likely to translate into feasible response when assistance responsibilities are identified before an emergency.

P2. Multiple channels improve inclusive reach only when their access requirements and failure points are sufficiently different.

Table 5. Additional propositions and possible tests

ID	Proposed relationship	Possible observation
P3	Message-send counts will overstate inclusive reach where intended recipients are not identified.	Compare sent messages with a defined exercise population.
P4	Comprehension gains will not resolve response barriers caused by missing assistance.	Separate explanation scores from feasibility reviews.
P5	Feedback records will improve preparedness learning only when unresolved barriers have a responsible recipient.	Trace identified issues through subsequent planning decisions.

A useful test would specify a plausible competing explanation and seek evidence that could weaken the proposed relationship. Comparison conditions, timing, and assistance received should be described before interpreting an observed difference. A finding inconsistent with a proposition would require revision of the framework, not reinterpretation of every outcome as support.

The appropriate unit of analysis may be a task episode, a decision, or a programme cycle. Future researchers should choose that unit explicitly and keep it consistent across measurement and interpretation. Repeated observations from the same person or organisation should not automatically be treated as independent evidence.

7 IMPLEMENTATION PATHWAY

The pathway in Table 6 is a proposed pilot design rather than a record of completed implementation. It identifies who would perform each task and what evidence should be available before proceeding. Local organisers should adapt the sequence to their authority, resources, participant needs, and responsibilities.

Table 6. Staged implementation proposal

Stage	Proposed task	Responsible role	Evidence before proceeding
Authorise	Agree the scope of a non-operational planning exercise.	Competent local authority	Clear boundaries and approved fictional materials.
Map	Identify intended participants and access requirements.	Coordinator with community representatives	Minimum necessary information and consent arrangements.
Explain	Use sample messages and check interpretation.	Facilitator	Location, time, action, and uncertainty explained.
Review barriers	Identify assistance needs and shared channel dependencies.	Responsible operational roles	Questions assigned for competent review.
Follow up	Explain decisions and retain unresolved issues.	Preparedness coordinator	A review date and an accountable response history.

A pilot should begin with a bounded scope that can be reviewed without unnecessary cost or disruption. The coordinator should record deviations from the plan, including inaccessible activities, unavailable resources, and support that exceeded expectations. These records help explain why an apparently suitable design may work differently across settings.

Expansion should depend on a reasoned review of evidence and unresolved barriers. Completion of the pathway does not itself establish effectiveness. Stopping or revising a pilot can be appropriate when its objective cannot be reached under the available conditions.

8 EVALUATION AND MEASUREMENT

A pilot should record who could not participate and why. An accessible explanation task may require different communication formats while keeping the same substantive objective. The evaluator should distinguish a planning issue that was identified from one that was resolved. No numerical target for receipt, evacuation time, or loss reduction is prescribed, because the article contains no local operational assessment.

Table 7. Proposed indicators and interpretation limits

Dimension	Operational question	Potential evidence	Interpretation limit
Receipt	Intended recipients who receive the sample message.	Defined exercise list and accessible response route.	Non-response does not establish refusal.
Interpretation	Correct explanation of message meaning.	Verbal, written, or otherwise accessible task.	Familiarity with one scenario may inflate results.
Feasibility	Unresolved barriers to the authorised action identified.	Competent planning review.	Understanding alone does not establish capacity.
Redundancy	Channels with materially different dependencies available.	Planning-level dependency map.	Two applications may share one failure point.
Closure	Reported barriers receive a reasoned planning response.	Issue and decision records.	A completed record is not proof of operational safety.

Any evaluation involving people or identifiable records needs an appropriate protocol, permissions, and a locally relevant ethics determination before collection. This article reports no such collection. A future report should describe missing observations, participation barriers, and the conditions of assessment, rather than presenting completed cases as if they represented everyone intended to benefit.

9 DISCUSSION AND LIMITATIONS

The main contribution is diagnostic separation. A weak result at one stage requires a different response from a weak result at another. If a recipient never receives a message, explanation training alone is insufficient. If the message is understood but assistance is absent, rewriting it may improve clarity without changing feasibility. Programme teams need to know which responsibility is implicated before declaring improvement.

Inclusion creates information responsibilities as well as communication tasks. Identifying assistance needs may be necessary for planning, but public disclosure of household details can create avoidable risks. A minimum-information approach should specify why information is collected, who can access it, and when it is reviewed or removed. Consent and confidentiality need practical arrangements rather than a generic assurance. These proposals require local governance review before implementation.

The framework cannot replace hazard expertise, route inspection, shelter assessment, or operational command. A tabletop exercise may reveal ambiguity while leaving real-world performance uncertain. A later supervised drill would introduce different burdens and risks and would require its own competent planning. No claim is made that the framework prevents losses or guarantees response. Its value should first be examined through whether it identifies barriers accurately and leads to accountable planning decisions.

PLANNING IMPLICATIONS

For programme coordinators, the design implies that communication review and assistance planning need to be connected without merging their responsibilities. A facilitator can identify an unclear message, but a competent authority must resolve operational questions. Community representatives can identify barriers that a standard checklist misses. A useful record states the question, responsible recipient, expected review point, and current uncertainty. Closing an issue should require a substantive planning response rather than a label chosen to improve the appearance of progress.

The documentary basis is limited to a small purposive corpus of official resources. It supports a normative and analytical design, not an exhaustive account of the research literature. Additional peer-reviewed studies, local evidence, and critical author review are needed to assess novelty and refine the proposed constructs. Cross-setting applicability remains an open question.

10 CONCLUSION

An inclusive preparedness programme should examine receipt, interpretation, feasible action, and feedback separately. The proposed framework makes unresolved barriers visible and links them to support responsibilities. It remains unvalidated and must be adapted with competent local authorities before operational use. No causal claims about disaster outcomes follow from this conceptual analysis.

PRIORITIES FOR FURTHER RESEARCH

The next research priority is a safe tabletop feasibility study under competent local oversight. It should test whether the framework distinguishes receipt, interpretation, and assistance barriers without collecting unnecessary household information. Subsequent planning reviews could examine whether identified issues receive a substantive response. Operational drills would require separate preparation and authorisation. An improvement in explanation or issue records would support a limited communication finding; it would not establish safe evacuation, adequate shelter capacity, or a reduction in disaster losses.

DECLARATIONS

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