THE CORE PILLAR

ENSURING SUCCESS OF THE EARLY WARNINGS FOR ALL INITIATIVE

1 March 2023

WARNINGS REPORT
RECOMMENDATION NOTE

Key Points

- Disasters are a result of our social (including political, technological, and economic) environment; these enabling environmental factors must be considered fully in the *Early Warnings for All Initiative* to make sure warnings serve everyone.
- People centred approaches and active stakeholder partnerships are needed to establish effective warnings.
- The current *Early Warnings for All Initiative* Executive Action Plan risks failure as the four pillars operate in silos and people-centred approaches are not considered across all four pillars.
- We propose to implement a "Core Pillar" to facilitate cross pillar collaboration and integration that includes the engagement of the wider community and most vulnerable.
- Without this the *Early Warnings for All Initiative* may fail, resulting in billions spent on warnings that are not fit for the needs of those who are facing the risks and will not achieve the outlined impacts, with warnings continuing to operate in silos, and potentially causing more harm than benefit.

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Target Audience: Early Warnings for All Initiative Partners, Pillar Leads, and Monitors / Evaluators

PROBLEM: MAXIMISING THE WARNING VALUE CHAIN

The *Early Warnings for All Initiative* is urgently needed to enhance warnings globally to support everyone. The requirement to make sure everyone is protected by warnings is complex. Many prior smaller scale initiatives focused on enhancing warnings did not yield the desired results, often failing to consider the 'first mile', subsequently failing to reach the 'last mile', or taking a siloed pillar approach. *The Early Warnings for All Initiative* Executive Action Plan highlights the requirement to prevent "Valleys of Death" within warning systems (Figure 1) that are the failure in communication between different elements of the warning system that make up the warning value chain, which then undermines the effectiveness of the whole system. The Risk-informed and Early Action Partnership State of Play 2022 report also stated as one of its calls to action of: "Strengthening the linkages between the early-warning-early-action community and Locally Led Adaptation and people-centred approaches", fully committing to a whole-of-society approach along the full value chain (Wagner, 2023). There is existing evidence and examples of best practice of how to build people-centred and holistic early warning systems to avoid these failure points.

Practical ACTION

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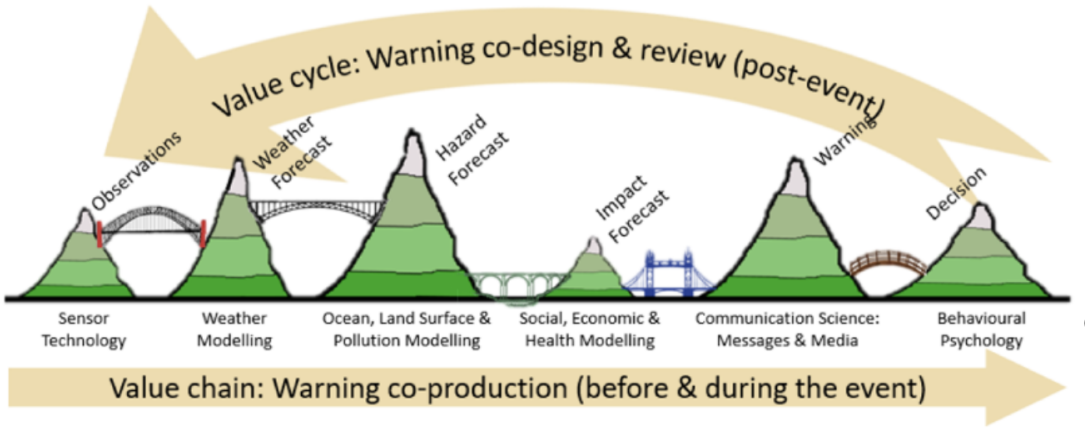

Figure 1: Schematic value chain for high impact weather warning showing the capabilities and outputs (green "mountains") and information exchanges (bridges) linking the capabilities and their associated communities (Golding et al. GAR2019).

However, the current *Early Warnings for All Initiative* framework for implementation has divided actions into four pillars: (1) disaster risk knowledge and management, (2) observations and forecasting, (3) warning dissemination and communication, and (4) preparedness and response capabilities (Figure 2). Cross-cutting enablers such as locally led adaptation and partnerships have already been identified in the Executive Action Plan as key to the effective implementation of *Early Warnings for All* Initiative, but a clear plan articulating operational implementation, funding mechanisms, roles, responsibilities and accountability for those cross-cutting enables have not yet been shared.

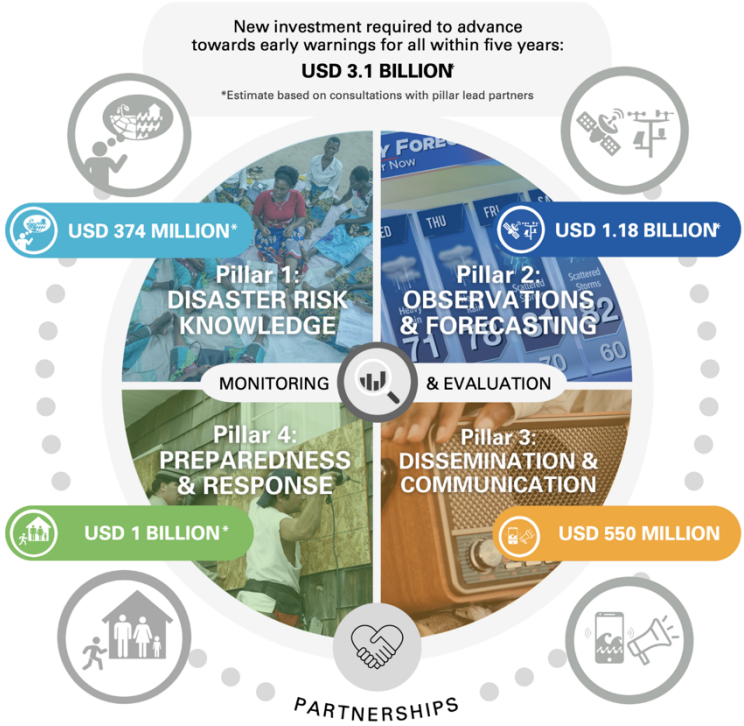

Figure 2. Budget overview for the four Pillars of the Early Warning for All Initiative (Executive Action Plan, p.6)

This document identifies potential failure points within the *Early Warnings for All* Initiative's Action Plan and suggests mechanisms to address these within the implementation plan design. REAP's recommendation of "starting with effective two-way risk communication, to ensure better connection along the entire EWEA value chain" supports our proposal for a **Core Pillar** and to aid in the "designing and developing of effective risk communication systems to offer a practical way to explore how to incorporate multiple stakeholders and their needs, priorities and capabilities".

FAILURE POINTS

The *Early Warnings for All Initiative* diagram of an effective multi-hazard early warning system (Figure 3) eloquently highlights the need for interaction between the four pillars to create an integrated warning system, placing people at the centre of the design. There are two key failure points identified in implementing the current *Early Warnings for All Initiative* framework (Figure 2) that need to be addressed to ensure the initiative achieves its ambitions: embedding people-centred approaches within all four pillars; and establishing joined up approaches across all four pillars (Fearnley and Kelman, 2022). The four pillars need to be embedded within a cross-cutting, core pillar, to create an enabling environment that facilitates people-centred and multi-hazard early warning systems that are successful.

Figure 3: Graphical presentation of an effective Multi-Hazard Early Warning System (MHEWS) as proposed by the Early Warning for All Initiative (WMO, 2022).

1. Embedding people-centred approaches within all four pillars.

For an Early Warning System (EWS) to be effective, it needs to be designed from the beginning with the needs of all people at risk in mind (Šakić Trogrlić et al., 2022). The Risk-informed and Early Action Partnership State of Play 2022 report recommends that a successfully embedded people-centred approach "will require support – political as well as resource-based – at all levels, from the national (and even international) to the local, as well as across sectors" (Wagner, 2023). For the *Early Warnings for All Initiative*, each of the four pillars need to be locally led, inclusive, and participatory in its approach and processes so that these needs are integrated within the design and implementation of each pillar, and responsibility is shared across all EWS stakeholders. EWS need to go beyond considering majority users and proactively reach the most vulnerable, strengthening social justice and situating decision-making power within communities. This includes setting up accountability across all EWS stakeholders to commit to developing and implementing policies and plans that serve all people, including the most marginalised. These can be seen, for example, via:

- **Pillar 1: Disaster risk knowledge:** taking a participatory approach to knowledge development and co-production of what 'good' solutions might look like; integrating contextual, local, and indigenous knowledge, data and experiences (IFRC, 2012); sharing/open access data and information on risk between EWS stakeholders, including communities at risk (Practical Action, 2020); feeding this risk knowledge into plans of preparedness and response (where it is safe to do so, considering principles of Do No Harm).
- **Pillar 2: Observations, monitoring, analysis, forecasting:** the need to integrate international and local data with citizen science (UNDRR, 2022); understanding varied users' different lead time needs; establishing monitoring priorities based on people's needs, data resolution and limitations; and ownership and sustainability of monitoring and forecasting.

- **Pillar 3: Warning dissemination and communication:** dissemination (the method for sharing warnings) and communication (the content of the warning) strategies must be contextually appropriate, accessible, understandable, believable, and actionable, adopting multiple methods and multi-directional processes (UNDRR, 2022); design of dissemination and communication strategies need to be directly informed by the needs and preferences of users', tailored to user groups, and feedback mechanisms between users and producers established (WMO, 2018).
- **Pillar 4: Preparedness and response capabilities:** designing warnings, preparedness and early action protocols and strategies with first responders (local community) in advance and in a coordinated, cohesive way with relevant stakeholders, to ensure everyone knows what to do when they receive a warning, and have the support to take early action, including providing support for those who cannot act alone (Jones et al, 2020).

In summary, this requires proactively engaging with the most vulnerable and most marginalised – going beyond the majority to reach everyone (Brown et al., 2019). This includes developing EWS that embrace Gender Equity and Social Inclusion, and go beyond this, to look at intersectional needs. By serving the most vulnerable first, EWS can be scaled up to reach all of society. This requires EWS to be embedded in the societies it serves and developed in a sustainable way from the beginning. A fundamental factor in safeguarding life and livelihoods in tandem to promoting health and socio-economic prosperity is via EWS that strongly support global development objectives.

"Warnings are part of a social process meaning that they should be ongoing, ingrained in the day-to-day and decade-to-decade functioning of society - even while recognising that this ideal is rarely met in practice" (after Kelman and Glantz, 2014, p.100)

2. Establishing joined-up approaches across all four pillars.

Being people-centred requires recognition beyond vulnerable people, to those operating and interacting as part of the whole system who operate across numerous institutions, geographies, and often different hazard silos. The Risk-informed and Early Action Partnership State of Play 2022 report recommends truly mainstreaming whole-of-society collaboration across EWS by "levelling the playing field, both in terms of knowledge (what makes up the EWEA value chain and who is active within it) and access (where to go for financing, technical assistance and other support)" (Wagner, 2023). For the *Early Warnings for All Initiative*, this requires a joined-up approach and strong partnerships across all four pillars as well as integrating all relevant stakeholders including: representatives from each pillar, representatives from specific groups (gender, youth, people with disabilities, etc), and practitioners and researchers with early warning and early action expertise (many of whom are already partners within existing networks such as REAP, The Anticipation Hub, CREWS and Hydromet Alliance).

Additionally, multi-hazard EWS (as opposed to multiple, siloed single-hazard EWS) remain an ill-defined concept, with little insight into how to establish and implement effectively. The dominant key challenge remains that whilst warning accountabilities for extreme weather and climatic events often sit within hydrometeorological and climatological agencies, these hazards and many other geological, hydrological, biological, and extra-terrestrial hazards that can occur as concurrent or cascading events require working across complex agency and disciplinary silos.

In most cases, the processes that link individual pillars of EWS fail, rather than the pillars themselves (Garcia and Fearnley, 2012). The reality is that significant interagency conflicts on warning system priorities already occur, and *Early Warnings for All* Initiative needs to incorporate a mechanism to guide solutions to such conflicts (Tupper & Crozier, 2022). There are examples of strategies and existing tools that can be used to address these gaps (Fearnley and Beaven, 2018), such as establishing effective communication networks, better coordinating practitioners needs to drive scientific research, integrating scientific knowledge into practice, developing effective and context-specific decision-making processes, defining accountability and

responsibility, acknowledging the importance of risk perception and trust in the information for effective action, and considering the differences among technocratic and participatory approaches in EWS (Garcia and Fearnley, 2012; IFRC, 2020).

Flexibility and the consideration of local context is essential to establishing effective EWS. This includes understanding the cultural, structural and organisational issues across organisations in collaborating to plan and deliver early warning and early action, factors that enable and exhibit standardisation and interoperability across organisations and sectors, barriers to multi-sectoral information sharing and cross-disciplinary jargon barriers, and political impacts and the structure of power (formal and informal) on the ability of different actors to influence the strategic development of plans and procedures related to EWS.

Essentially, a joined-up approach requires consideration of and accountability for the integrated governance common to the four pillars, within countries and internationally. Increasing levels of standardization nationally and globally, and potentially through the *Early Warnings for All Initiative* might challenge the ability to incorporate the required local expertise and circumstances into the implementation plan, unless considered from the beginning.

IMPACT OF FAILING TO ADDRESS THESE GAPS

The *Early Warnings for All Initiative* risks future early warning failures if a Core Pillar is not implemented to address the links between the four pillars, essentially falling into the 'Valleys of Deaths' (Figure 1). This could result in a rise in deaths and impacts, over-reliance on insufficient warnings, and the destruction of already established informal warnings. Without a central pillar to connect the four existing pillars, they stand alone, and serve no united purpose, and the warning value chain is not achieved. Table 1 provides a summary of case study demonstrating successes and failures related to people-centred approaches and EWS stakeholder partnerships, where it is clear failures frequently occur where the gaps occur, and successes are seen when an integrated approach (or core pillar) is implemented. Further case study examples can be found in a recent paper by Coughlan de Perez et al., 2022.

RECOMMENDATIONS

We recommend that a "Core Pillar" is added to the *Early Warnings for All* Initiative to connect the four pillars immediately (Figure 4). This will enable creation of people-centred approaches within all four pillars and establishing joined up approaches across all four pillars.

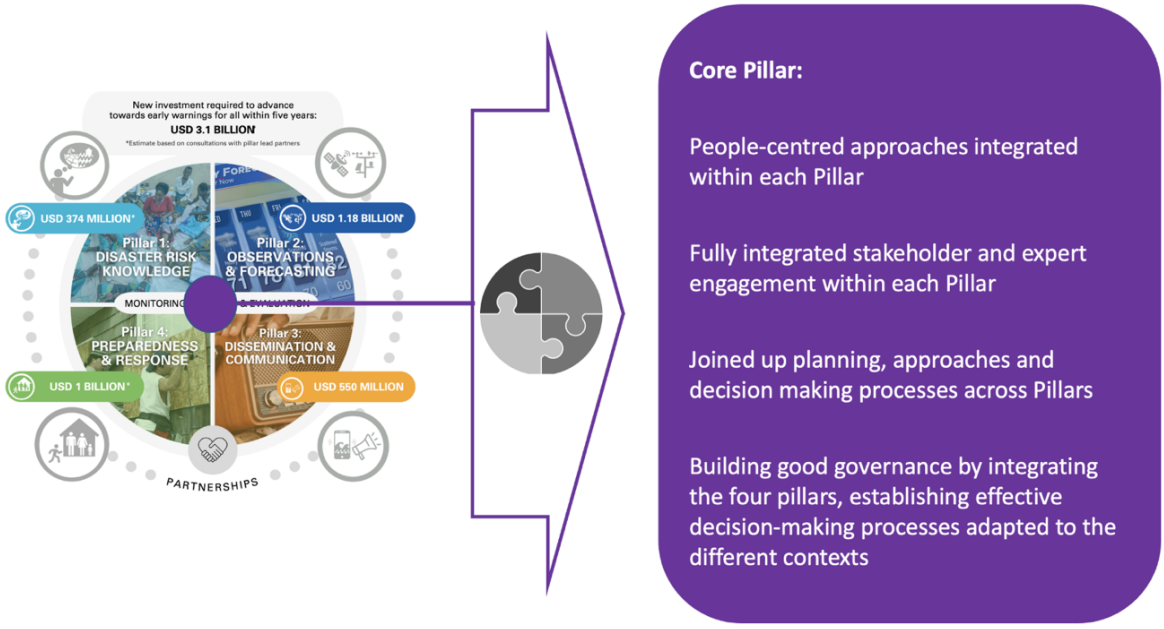

Figure 4. Suggested addition of a Core Pillar within the Early Warnings for All Initiative plans.

The following recommendations outline specific mechanisms of how this Core Pillar would work in practice.

1. Set up a Core Pillar governing body
The set up of a governing body in the Core Pillar with accountability to ensure that a balanced, coherent plan and program of initiatives is taken to enhance the multi-hazard, interdisciplinary aspect of EWS.

Design mechanisms and support activities: The governing body should design mechanisms and actively support activities within the implementation plan to prevent the four pillars operating in siloes and not interacting, helping to build a system, and develop accountability, trust, risk knowledge that will prevent future warning failures.

Regular co-ordination: The governing body should meet regularly to connect the pillars and facilitate knowledge sharing and collaborative working practices between pillars and EWS stakeholders.

Funding and resources: Ensure funding (either from each Pillar, or from separate sources) to develop a Core Pillar strategy and implementation plans to support inclusive and collaborative processes and action, including time, resources, and responsibility to build advocacy, awareness, training, resources, guidance, frameworks, evidence, MEL, and good example case studies.

Integrate people-centred approaches: The governing body should take a leadership role to ensure each pillar is designing and implementing people-centred approaches, engaging and working across pillars, and coordinate with EWS stakeholder groups at national and international levels.

We suggest the governing body to include:

i. A "Head" role to establish leadership across the governing body.
ii. Representation from each Pillar leads (this could be the current Pillar coordination group).
iii. *Early Warnings for All Initiative* nominated country and regional focal point representative (for example from within existing institutions that use early warning information) to take ultimate responsibility from each country and report to the head/coordinator (WMO or UNDRR) to help establish and maintain joined-up approaches across all four pillars.

2. Embed Pillar-specific accountability
Accountability: Ensure accountability within each pillar to plan for funding and activities within their implementation plan to be people-centred, involve EWS stakeholders, and work with the governing body to collaborate with other Pillars.

Resource allocation: Funding from each pillar to contribute a proportion to the Core Pillar for cross-pillar collaborative activities and projects.

Accountability and inclusivity: Generate responsibility and accountability between all the stakeholders involved to be inclusive and participatory in their processes, design and implementation, including with local *Early Warnings for All* Initiative representatives in each nation.

3. Integrate the Core Pillar with EWS stakeholders
Stakeholder integration: Form a group of EWS stakeholders (at international, regional and national levels) to include experts and representative intermediary groups to work with and support the governing body with knowledge, expertise and links across pillars/silos. These EWS Stakeholders to be drawn down into each pillar as required to implement joined-up approaches across and within pillars.

Building partnerships: Enhance partnerships through the governing body and within the Pillars to include all EWS stakeholders, enabling more equal recognition of value and inclusivity between scientists, government,

DRRM, researchers, NGOs, and all engaging with communities at risk. This could be supported through existing EWS partnerships that help to build bridges across these diverse stakeholders, such as the Risk-informed Early Action Partnership (REAP).

Build a network: Membership of the EWS Stakeholder group should include external members from various practitioner and academic organisations and partnerships, alongside intermediary representatives that will consult with local communities and marginalised groups at multiple stages. This group should take advantage of existing expert groups and networks such as the WMO Expert Team on Early Warning Services and partners from REAP, Anticipation Hub, CREWS and Hydromet Alliance.

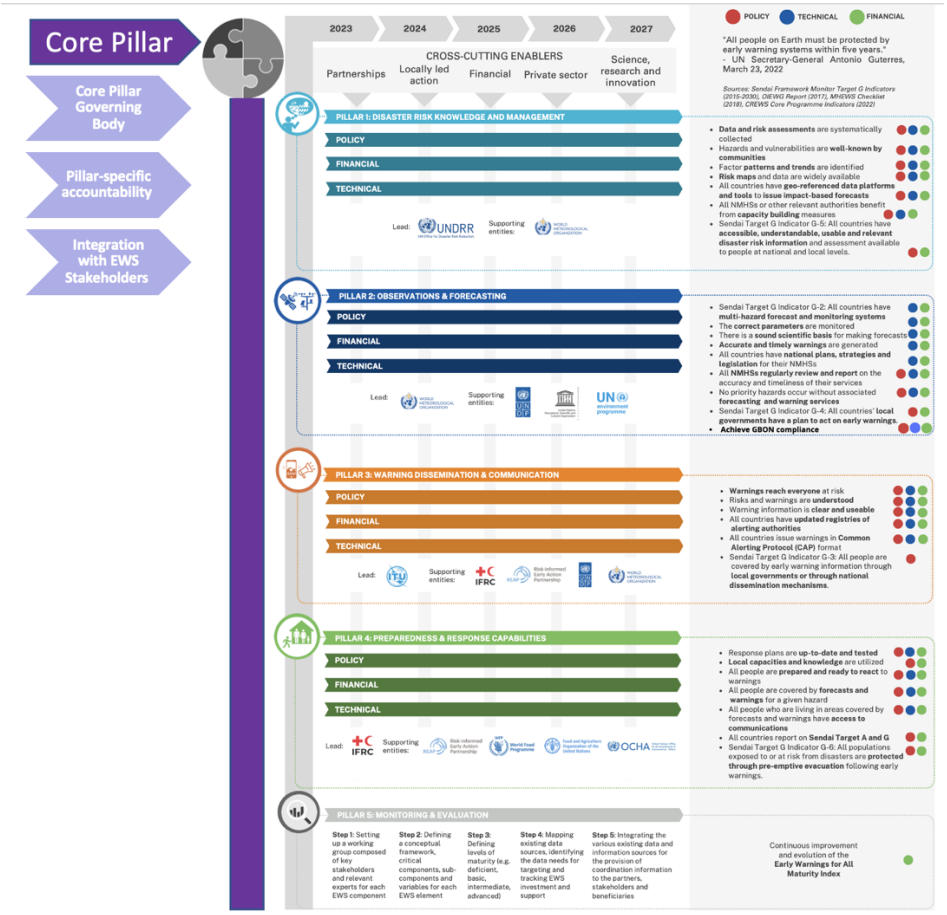

Figure 5. Suggested additional Core Pillar to be added to Early Warnings for All Initiative's five-year action plan overview, a framework for implementation (WMO, 2022).

CALL TO ACTION FOR EARLY WARNINGS FOR ALL INITIATIVE

We feel that the implementation of a Core Pillar that includes the engagement of the wider community (for example via REAP) would assist in developing more effective warnings for all. It is a hugely complex problem to solve, and we feel integration is critical to the success of the *Early Warnings for All* Initiative.

If full integration of people centred, MHEWS systems both within and between the four pillars are not addressed explicitly as proposed by the above, then *Early Warnings for All* Initiative risks spending billions on warnings that are not fit for the needs of those who are facing the risks and will not achieve the outlined impacts.

Additionally, these warnings may continue to operate in silos, creating further failures in warning systems, leaving people behind, destroying existing informal systems, and potentially causing more harm.

Table 1: Case study evidence showing examples of success and failure related to people-centred approaches and EWS stakeholder partnerships

Linking Issue	Example	Lesson
Effective and continuous communication networks	Nepal floods, 2022 (success)	1) Multiple dissemination channels for sending out warning information, including: real-time data published on a government online portal, daily bulletins to institutional decision makers, dissemination of warning messages to the local community via radio, SMS messages and social media, and formal (media, local authorities, army etc) and informal (volunteers, neighbourhood etc) community dissemination; 2) training and awareness raising at local level; 3) improved feedback loops between local NGOs and national HydroMet services; 4) recognition there is still room for improvement to reach the most marginalised.
Good governance for effective decision-making	Hurricane Katrina, USA 2005 (failure)	1) Long-term warnings were ignored, and government officials failed to maintain levees and floodwalls; 2) government officials took insufficient actions or made poor decisions immediately before and after landfall; 3) the systems on which officials relied to support their response efforts failed, and 4) government officials at all levels failed to provide effective leadership.
Considering multi-hazard scenarios	Tohoku, Japan 2011 (failure)	1) Underestimating the scale of the earthquake, and subsequent tsunami, landslides, and liquefaction resulted in insufficient warnings resulting in larger death tolls; 2) sensible land planning and ignorance of ancestorial knowledge led the Fukushima Daiichi Nuclear Power Plant being built in a high-risk area resulting in a global nuclear crisis.
Integrating science and research into practice	The establishment of GSI's National Landslide Forecasting Centre through the research-into action LANDSLIP project, 2021 (success)	1) Collaborative, interdisciplinary research project bringing in expertise across subject areas, including physical science disciples, social scientists, practitioners, and implementers; 2) equality of partnerships and sustainable stakeholder engagement – Geological Survey of India as project partners for longer term legacy of learning; 3) flexibility in project workplans to adapt to contextual needs; 4) time and resources spent establishing common goal; 5) championing from within context for an operational forecast centre; 6) leadership within LANDSLIP project to channel efforts towards a common, useful and applied goal.
Risk education and availability of scientific knowledge	Nevado del Ruiz, Colombia, 1985 (failure)	1) Human error in misjudgement, indecision, and bureaucratic short-sightedness around the scientific evidence provided of the lahar risk from the increasingly active volcano, resulted in over 23,000 deaths in Armero, most of which could have been saved if warnings had been issued; 2) doing better science often does not translate into a reduction of loss of life and social and economic losses; 3) information was not publicly available due to concerns of panic.
Define accountability and responsibility	Fiji Woman's Weather Radio (success)	1) The programme supported women to become leaders in improving the warning situation for everyone.; 2) Fijian women know how to manage crops when drought hits, and teach each other skills to survive and provide food for the families; 3) the value of supporting the people who can best help their community, and work within technological constraints is enormous; 4) focusing on the first mile has resulted in long-term improvements, the development of a highly effective network, and gender inclusion benefitting everyone.

	L'Aquila, Italy, 2009 (failure)	1) The L'Aquila commission members made contradictory and historically inaccurate statements regarding the possibility of earthquake precursors; 2) they provided the townsfolk the false impression that there was nothing to fear by describing the swarm as "normal" and by incorrectly stating that the swarm discharged energy; 3) poor risk communication was the result of not having clearly defined roles, and protocols.
Increase participation and engagement	Bangladesh Cyclone Preparedness Programme (CPP), 1970s, (success)	1) Following over a million deaths from cyclones in the 1970s, massive reduction in death toll was effected by engraining cyclone warning and response within the local culture and linking it to day-to-day life via the Cyclone Preparedness Programme (CPP); 2) education and basic trainings resulted in people receiving local warnings, knowing where to evacuate to, and are confident that much of their livelihoods and services will remain viable while rebuilding; 3) the warning process has improved daily life and livelihoods
Bringing these together	Argentina's social science team within the Met Service (success)	1) Dedicated social science team within the Met Service tasked with understanding local, user needs and developing an iterative approach to improving forecast information quality – with a specific focus on dissemination and communication to support early action; 2) social science team were integrated within the forecasting team and provided an expert bridge to local community and stakeholder needs; 3) iterative and reflective development and improvement; 4) ongoing efforts to continue joining up local to national stakeholders through expert intermediary group.

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