

Webinar Summary — 21 JULY 2026

From warning to action: design, partnerships, and practice

What actually closes the gap between a warning received and an action taken

About this session

The fourth and final of [four webinars](#) in Reaching the Last Mile, a series sharing findings from **15 community-level studies across 14 countries** supported through the [GDPC Research Grants Program](#). The series carries one argument: coverage does not guarantee protection. A system can reach a geographic area on a map while the people inside it never receive, understand, or act on a warning.

[Earlier sessions](#) examined who is left out of warning systems and what knowledge communities already hold. Session 4 turned to the final step — and the one where most systems fail: **a warning that arrives but does not produce action is a warning that failed. So what design choices, partnerships, and conditions actually close the gap between message and action?**

Three researchers presented evidence from African settings and very different hazards: extreme heat in informal settlements in **Nigeria**, flooding in a lakeside ward in **Kenya**, and household early action ahead of Cyclone Freddy in **Malawi**. Across all three, the same finding surfaced from opposite directions: **people largely received the warnings, understood the risk, and were willing to act, but often lacked the resources, infrastructure, and specific guidance that action requires**. The gap between warning and action is rarely a communication failure alone. It is a capacity failure.

► Watch the full session: [Webinar 04 recording](#)

1. Towards effective early warning and early action for heat resilience in informal settlements

Olumuyiwa Adegun · Federal University of Technology, Akure, Nigeria

The problem

A large share of the urban population in many African countries lives in slums and informal settlements — usually on at-risk land unsuitable for residential development, and usually socioeconomically disadvantaged. Poor housing quality, limited access to services, and low incomes leave residents acutely exposed to extreme temperatures. **Informal settlements are climate risk hotspots inside cities, and they constitute a last mile of their own** — marginalised and deprived, even while surrounded by urban infrastructure.

The study

The project ran in two parts across selected informal areas in **Akure and Lagos**. At first, baseline assessment showed how residents currently access and use existing weather and heat information, combining focus group discussions (segmented by gender, livelihood, and other characteristics) with a survey of **637 residents — 364**

in Akure and 273 in Lagos. Then, the researchers developed and piloted a community heat early warning system: next-day maximum temperature and relative humidity data from the Nigerian Meteorological Agency and the UK Met Office were run through a Humidex model to derive a heat index, then classified into risk bands and disseminated.

HEATALERT SMS messages were sent for 39 days in English and local languages to residents who volunteered through the survey — reaching **175 residents in Lagos and 151 in Akure** — with posters displayed in the communities for those who did not receive the SMS.

What the baseline showed

- **Awareness was low.** Knowledge of heat early warning systems stood at 38.1%. Understanding of the information ranked as the biggest barrier, followed by language, availability, mode of technology, and frequency.
- **Most residents had taken no specific action** on heat information they had previously received.
- **Forecast scepticism.** Some residents doubted forecasts could be accurate at all, with several framing weather as beyond human prediction.
- **Livelihood trumps precaution.** Outdoor workers weighed lost income against heat exposure and chose income. As one discussant put it, the heat of the pocket — financial lack — is worse than the heat of the sun.

What the pilot found

- **The alerts were well received.** Most participants confirmed receiving the SMS, and those who did not understand a message sought clarification from community leaders and others they trusted.
- **Behavior changed.** Residents described adjusting hydration, dressing, bathing, diet, and the timing of daily activities, and some reported improvements in their health as a result.
- **Alert fatigue is real, if minor.** A few discussants tired of near-identical messages when the heat index stayed flat for days at a time — an important design consideration for any daily alerting system.
- **Delivery preferences vary by group.** Radio ranked first overall, followed by in-person communication and SMS. Age and education level both predicted preference: younger and more educated residents favoured SMS and email, while older residents and those with less education preferred radio, telephone, and interpersonal channels.
- **Some phones never received the message.** Handsets with do-not-disturb enabled do not receive bulk SMS — a silent, invisible delivery failure.

Lessons and recommendations

- **Move from top-down dissemination to bottom-up co-production,** with residents taking an active role in sharing and interpreting heat information — a hybrid rather than one-directional system.
- **Digitise and automate the alerting workflow** — the pilot ran manually, requiring daily checks — and leverage technology such as IoT sensors.

- **Take language seriously.** Reach requires local languages, and even within them, careful choice of the specific terms residents actually use.
- **Provide the basic services that make action possible.** Advising hydration or cooling means little where water, electricity, and cooling devices are unaffordable or absent. Information alone does not build resilience.
- **Use multiple channels,** including radio and community sensitisation events, and expand reach beyond the immediate community.

► **Adegun — Designing and evaluating a Community-Centred Heat Early Warning System (CHEWS) for Nigerian slum communities:** [View the slides](#) / [Read the full paper](#)

2. Why early warnings fail at the last mile: barriers to inclusive flood early warning in Kolwa East, Kisumu County, Kenya

Linda Obiero · University of Nairobi, Kenya

The problem

Kenya has invested significantly in forecasting and weather monitoring, yet **a persistent gap remains between producing a forecast and turning it into action at community level**. Kolwa East Ward in Kisumu County is highly flood-prone — flat terrain, high poverty, and exposure to two distinct flood mechanisms: rainfall flooding, and backflow from Lake Victoria driven by rains falling far away in the highlands, which can flood the ward on a day when no rain falls there at all. The disruption is not abstract: when the team arrived to begin fieldwork, the county administrator's office they had been meeting in had itself been flooded.

The study

A mixed-methods study combined remote sensing and GIS analysis of flood extent (2018–2024) with interviews, focus group discussions, and key informant interviews, asking what blocks access to warning messages, what impedes comprehension and inclusivity, and how floods affect the community.

Flooding is intensifying

Flood extent has grown consistently across both the March–May and October–December rainy seasons, with the community now experiencing more incidents during the long rains. **2023 was the most severe year on record for the ward, with approximately 631 hectares submerged**. Residents reported being displaced roughly three times a year.

What floods cost the community

- **Housing destroyed.** Semi-permanent mud structures collapse entirely, forcing households to rebuild from scratch after every event.
- **Food and livelihood loss.** Farms are washed away and fishing collapses as stocks are swept downstream.
- **Psychosocial stress and gender-based violence.** Men unable to provide for their families experience acute frustration, and GBV incidents rise.

- **Cultural disruption.** Local norms prevent in-laws from sharing living space, but evacuation centres force exactly that — a significant deterrent to evacuating at all.

Where the warning chain breaks

- **Governance and coordination.** The county relied on existing climate change committees to disseminate flood warnings, but those committees were not reaching people. Local officials were often left out of national information flows, and national, county, and NGO efforts ran in parallel with duplication.
- **Communication gaps.** Messages travel mainly by SMS, radio, and TV, which does not reach a wide enough population — and messages are generic. Residents are told to move to higher ground in a ward that is uniformly flat, and to go to an evacuation centre that does not exist.
- **Infrastructure and preparedness.** There is no designated evacuation centre; people shelter in schools and churches, which are unavailable when schools are in session. There is no local disaster committee.
- **Funding and resources.** The county has not allocated funds to develop an inclusive flood early warning system, leaving it dependent on NGOs and the Red Cross, which is not sustainable.
- **Inclusivity and social barriers.** People with disabilities, older people, widows, and residents who cannot read are systematically excluded: with no sign language or braille formats, blind and illiterate residents must wait for a neighbour to return home and read the SMS aloud — often too late to act. Women and children relocate while men stay behind in flooded homesteads, deterred by inadequate centres and fear of theft.
- **Local knowledge is excluded.** Communities read their own indicators — certain trees flowering, elders feeling cold — and are willing to participate in flood management, but were not involved in designing the system.

Recommendations

- **Co-develop and localise warning messages with communities**, replacing generic national text with guidance that fits the actual terrain and options available.
- **Strengthen community-based preparedness and evacuation capacity** through regular training, mapped evacuation routes, and a functioning local disaster committee.
- **Improve the flood early warning system** by strengthening coordination between institutions and improving how data is collected and shared, so information arrives in time.
- **Adopt a gender equality and social inclusion (GESI) approach** across disaster planning and communication because excluding the most vulnerable is precisely what makes a warning unactionable.

► **Obiero — Barriers to inclusive early warning messaging in Kolwa East, Kenya:** [View the slides](#) / [Read the full paper](#)

3. When the warning arrives but the action doesn't: household early action ahead of Cyclone Freddy in Malawi

Charles Chunga · Mzuzu University, Malawi

The problem

Chunga opened with a scenario. You farm in Makhuwira, in Malawi's flood-prone Chikwawa District. A megaphone announces rain tomorrow. You know flooding is possible. Your livestock is tethered outside, you have no money for transport, and the nearest evacuation centre is kilometres away. **Do you leave, or do you wait?**

Tropical Cyclone Freddy struck in March 2023, causing **676 deaths and displacing over 560,000 people** in Malawi. Makhuwira — 63 km², highly flood-susceptible, with little economic diversification — was severely affected. Despite years of increasing investment in early warning systems, flood impacts remain severe. The study asked why.

The study

A door-to-door survey of **378 households**, plus 17 key informant interviews and 3 focus group discussions.

Most households were warned. Far fewer acted.

- **78.6% received an early warning** before Cyclone Freddy.
- **40% took any early action** at all.
- **30.7% evacuated before the disaster** — most others moved too late.
- **Under 16% took asset-protective measures:** reinforcing house structures (8.5%), installing flood barriers (3.7%), stockpiling supplies (3.4%), or securing tools (2.4%).

Households were willing to act, not passive. One respondent described using stones and sandbags to build a floodwater barrier between the river and his two houses — and only one house was damaged. **What differed was capacity, not willingness.**

What held households back

- **The warning arrived too late.** The flood was first forecast eight days out, but many households heard about it only the day before impact — the delay caused by bureaucratic handoffs from the national forecasting body to district councils to local committees to residents. Radio carried it earlier, but few relied on radio.
- **Low risk perception, driven by an ambiguous message.** People were warned of prolonged rainfall and interpreted it as rain, not flood. Having not experienced flooding of that severity before, they did not expect to be affected.
- **Limited financial and material resources.**
- **One evacuation centre for 63 km².** Many households could not reach the Savala centre with their own resources.
- **Evacuation centres without support.** Households feared they could not feed themselves once there, so they stayed home where they could keep earning.

What helped households act

- **Financial resources.**
- **Prior preparedness training** — those trained knew which protective measures to take, including ones requiring no money.
- **Community coordination and engagement**, which drove resource mobilisation and a visible demonstration effect: seeing neighbours act prompted others to act.
- **Choosing low-cost protective actions**, such as sandbags and stones, rather than measures requiring cash.

What closes the gap

- **Timely warnings with clear messages** — naming the expected hazard, likely impacts, and specific protective actions, not just the weather.
- **Capacity to act** — financial resources, materials and equipment, and knowledge of protective actions.
- **Accessible, well-resourced evacuation centres**, with complementary centres opened before impact rather than after, and supplies in place from the start.
- **Community coordination** to mobilise households and resources.

The role of partnerships

No single institution closes this gap. In Makhwira, the **district council and national meteorological and disaster management departments** issued and coordinated warnings; **traditional leaders and village civil protection committees** bridged communities and formal institutions, relaying warnings and mobilising households; the **Malawi Red Cross Society** strengthened those committees through training, equipment, and technical support — and the study found higher action rates in areas where committees were active; and **humanitarian partners including WFP** supported evacuation centres with food and relief supplies. Even where that support arrived late, the expectation that it would come was itself enough to move some households to evacuate.

Policy and practical implications

- Communicate hazard, impact, and protective action clearly, using interactive channels such as door-to-door visits and community meetings that let residents with lower literacy ask questions.
- Shorten the warning chain by strengthening the direct link between government and village committees.
- Strengthen local disaster committees (VCPCs) as the crucial link between communities and formal institutions.
- Invest in evacuation infrastructure — additional well-resourced centres, opened before impact, with timely support throughout.
- Open preparedness training to the whole community, not only leaders and committee members, so knowledge does not depend on slow secondhand transfer.
- Target anticipatory assistance at the most vulnerable — those who cannot overcome financial barriers on their own.

► **Chunga — Early action for flood protection in Makhwira, Malawi:** [View the slides](#) / [Read the full paper](#)

From the Q&A

1) Was a specific methodology used to identify and prioritise the actions that could be implemented at national and local levels, according to different hazards and alerts?

Adegun: We did not carry out a prioritisation exercise, but it is a useful direction. Given that resources, time, and remoteness all constrain what is possible, a prioritisation framework applied to the full range of possible actions across community and higher-level stakeholders would be a valuable addition to this work.

Chunga: We asked communities what actions they had taken and what impact those actions produced. Because of financial constraints, most actions were limited — sandbags and stones used as flood barriers, for example — and given the severity of the flooding, they had minimal effect on the outcome. That points to the need to invest in understanding what actions are realistic where impacts are severe enough to overwhelm household-level measures.

Obiero: We did not use a formal prioritisation method either, but we asked communities directly what they saw as their most pressing need. Evacuation centres topped the list — there is no designated centre in the area, so people use schools and churches, or shelter with neighbours whose homesteads are not flooded. Second was the delay in information reaching them: even the local chief, the primary point of contact with the community, does not receive forecast information, so coordination structures need investment too.

2) What did each of you find most valuable in your co-presenters' work?

Adegun: What struck me in Charles' presentation is that people get the warning but have little or no power to take the right actions. That resonates with our finding on the heat of the pocket versus the heat of the sun — people know about the heat, but they have to make a living. From Linda's work, the rural flood setting was interesting; I would like to see how those warnings would work in urban slum settings too.

Obiero: The heat index work was valuable because it quantifies the risk and tells the community explicitly what counts as extreme heat — and the responses about drinking water and limiting time in the sun showed that coping mechanisms do not have to be complicated. Communities often live through these events without knowing what they are until someone names it. With Charles' work, it was striking to see such similar results in a different country: our communities are grappling with the same problems.

Chunga: The underlying barriers are common across all three studies — ability, opportunity, and capacity to act. Linda's findings on designated evacuation centres matched ours exactly: we have one centre, and the churches only open once the disaster has arrived, so no one can take action beforehand because there is nowhere to go. And the weighing that Olumuyiwa described applies to us too. Where people must choose between escaping and earning a living, earning usually comes first and escaping is left to chance.

3) How can early action communication be designed for more mobile populations, rather than people who stay in one place — for example, communication at bus stops in urban centres?

Adegun: Heat exposure is tied to specific geographies where particular temperature and humidity conditions occur, which makes mobile populations harder to reach. One line of innovation is digital tools that help people navigate during hot conditions. I have read about applications in a German city that use machine learning to flag routes with no trees or shading, so that vulnerable people — the elderly in particular — can check before setting out and choose a shaded, cooler route instead.

4) How should DRR budgets balance investment in warning delivery and dissemination against identifying and delivering practical support for action?

Obiero: The emphasis should go towards timely forecast information, because that is what enables us to support communities to act and avoid the worst impacts on their livelihoods. Helping communities act on time is cheaper in the long run than waiting for the disaster and stepping in afterwards.

GDPC: Funding for early action support ideally should not come from DRR budgets at all. Other mechanisms have a role — parametric insurance schemes are being piloted, and development budgets can contribute where, for example, new schools are built to double as emergency shelters.

Cross-cutting takeaways

- **The gap is capacity, not comprehension.** In Malawi 78.6% of households received a warning but only 40% acted. In Nigeria residents understood the heat risk but went out to work anyway. In Kenya people knew floods were coming but had nowhere to go. Asked to name the single biggest barrier, all three presenters pointed to resources and the capacity to act — not to awareness or belief alone.
- **Generic messages fail on contact with local geography.** Telling a flat lakeside ward to move to higher ground, or warning of prolonged rainfall when the threat is flooding, leaves interpretation to the household — and interpretation fails. Warnings must name the hazard, the likely impact, and the specific protective action.
- **The delay is institutional, not technical.** In Malawi the flood was forecast eight days ahead but reached households one day before impact, lost in handoffs between agencies, districts, and committees. In Kenya even the local chief — the community's primary point of contact — receives no forecast information. Lead time is created by forecasting and then destroyed by coordination.
- **Livelihood competes with protection, and usually wins.** Outdoor workers in Nigerian informal settlements weigh lost income against heat exposure; households in Makhwira stay home to keep earning rather than go to a centre that cannot feed them; men in Kolwa East remain in flooded homesteads for fear of theft. Protective action carries a cost that the poorest households cannot absorb.
- **Warnings are only as good as the infrastructure behind them.** Evacuation centres that do not exist, are too few, open only after impact, or lack food and water make evacuation advice unactionable. Hydration and cooling advice means little without water and electricity. Alerts must be paired with the services that make the recommended action possible.
- **Trained and coordinated communities act — and their action spreads.** Prior preparedness training was one of the strongest predictors of early action in Malawi, and where village committees were active, action

rates were higher. Seeing neighbours act prompted others to follow. Training and local structures are cheap relative to their effect.

- **Co-design builds the trust that makes warnings work.** All three studies converged on the same conclusion the series has carried throughout: communities excluded from designing a system do not trust or act on its outputs. Building warnings with people — in their languages, through channels they use, matched to what they can realistically do — is what turns a message into a response.

Resources & additional links

- ▶ **Series landing page:** [Reaching the Last Mile](#)
- ▶ **Meta-synthesis report (full report, executive summary, infographic):** [GDCP cross-study meta-synthesis](#)
- ▶ **All 15 research projects:** [Meet the Researchers](#)