Meteorological Services Department Newsletter

April 2026

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Director’s Foreword

MSD Director, Mrs. R. Manzou

This publication highlights the Meteorological Services Department's (MSD) ongoing efforts to strengthen weather and climate services across Zimbabwe. Our core mission remains focused on supporting national development, accelerating disaster risk reduction, and fostering community resilience.

As climate variability increasingly impacts our region, the MSD remains deeply committed to providing timely, accurate, and actionable weather and climate insights. Currently, global forecasting models indicate a strong possibility of an El Niño event developing ahead of the 2026/27 rainfall season. The Department is actively and continuously monitoring these conditions prior to the release of the regional consensus outlook later this year. In the meantime, we strongly advise the public to rely strictly on official meteorological updates when planning and preparing for the upcoming season.

This edition showcases several of our latest key initiatives designed to modernize national meteorological operations. These include:

- Improving Observation Standards: Upgrading guidelines to streamline data workflows and technical performance.
- Strengthening Early Warning Systems: Implementing faster, localized, and multi-hazard alert frameworks to protect lives.
- Enhancing Climate Services: Deploying targeted, data-driven agricultural products to empower our farmers and supporting other vital socio-economic sectors.

By consistently embracing technological innovation, strategic collaboration, and scientific advancement, the MSD ensures that Zimbabwean communities receive reliable information for well-informed decision-making.

I would like to extend my sincere commendation to our staff, partners, and stakeholders for their unwavering dedication and professionalism in advancing the Department's mandate. Together, we stand united in our commitment to minimizing risk through science and building a truly climate-resilient Zimbabwe.

Mrs. Rebecca Manzou,
Director, Meteorological Services Department (MSD) and
Zimbabwe Permanent Representative with WMO

THE ZIMBABWE METEOROLOGICAL SERVICES DEPARTMENT

wishes you a

HAPPY WORKERS DAY

01 MAY 2026

TODAY WE HONOUR:

All Meteorologists, Observers, Forecasters, Engineers, and support staff for their dedication and service. Their work keeps the country safe and informed every day.

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Press Statement: Preliminary Update On The Potential 2026/27 El Nino Phase

HARARE, 29 April 2026 — The Zimbabwe Meteorological Services Department (MSD) has noted recent updates from global climate forecasting centres indicating a high probability, ranging from 88% to 94%, that an El Niño event will develop during the 2026/27 rainy season. Historically, El Niño conditions in Zimbabwe carry a 65% chance of below-normal rainfall, which can lead to drier-than-average conditions. However, the department notes that forecasts made this early in the year face a "spring predictability barrier," meaning atmospheric and oceanic conditions could still change significantly before the season begins.

Because of this inherent uncertainty, the MSD has not yet issued its official seasonal forecast and warns the public and stakeholders against making final agricultural or financial decisions based solely on these preliminary models. A more reliable and definitive national outlook (NACOF) will be released in August 2026, following the Southern African Development Community (SADC) Climate Outlook Forum (SARCOF). This upcoming report will incorporate more recent data to provide the necessary scientific guidance required for accurate seasonal planning. However, the Department will continuously monitor these updates.

In the interim, the public and farming community are urged to remain calm and avoid panic□driven decision-making. The MSD recommends continuing with standard preparations for the upcoming season while beginning to adopt climate-resilient practices, such as water conservation and the identification of drought-tolerant seed varieties. Stakeholders are encouraged to stay informed exclusively through official MSD channels for regular updates as the weather outlook becomes clearer in the months ahead.

Issued by: Zimbabwe Meteorological Services Department (ZMSD) 29 April 2026

MSD Initiates The Amendment of The Weather Observation Handbook

The Meteorological Services Department (MSD) concluded a three-day workshop in Harare, marking a critical step toward overhauling the country's Observer's Handbook for the first time in more than four decades. The Observer's Handbook forms the basis of the training programmes conducted by the Department for its technical staff in line with WMO requirements. Held from April 13 to 15, the Observer's Handbook Amendment Workshop convened Meteorological Chiefs, senior forecasters, and field observers to discuss and agree on proposed revisions to the 1982 edition. The event forms part of an ongoing amendment process which will also involve external consultations before the handbook is finalised and published.

Discussions during the workshop focused on aligning national observation practices with evolving global standards. Delegates reached consensus on transitioning to modern, environmentally sustainable technologies at observation stations and on removing references to obsolete equipment. The proposed changes are intended to ensure future compliance with international environmental and technical benchmarks. The workshop also addressed day to day operations for observers and forecasters. Proposed updates to the draft include streamlined workflows for data collection, quality assurance, transmission, and integration into forecasting systems, aimed at improving the speed and reliability of public warnings.

Additional amendments that are under consideration include the adoption of gender inclusive language across all technical guidelines, training materials, and reporting templates, reflecting wider institutional reforms within the MSD. The resolutions adopted will now inform the drafting of the updated Observer's Handbook. Once compiled and approved, the document will be rolled out to all synoptic and climatological stations nationwide. Officials described the workshop as a "generational step" toward modernising Zimbabwe's meteorological services. The finalised handbook is expected to bring national practices in line with current World Meteorological Organization (WMO) standards, Acreditaion process and strengthen support for climate-sensitive sectors including agriculture, aviation, and disaster management.

MSD Personell attending the Observer Handbook Ammendment Workshop

MSD Holds an Exceptional Safe4All Living Lab Workshop

As Zimbabwe's fields grapple with the brutal realities of climate change, where drought-stricken crops meet flood swollen rivers in a dance of devastation, the call for game changing solutions has ignited a spark. Harnessing the power of cutting edge science, grassroots innovation, and the raw power of storytelling, a movement is rising to fortify the nation's food systems, protect its ecosystems, and chart a course for resilient prosperity.

Meteorological Services Department of Zimbabwe recently concluded a highly successful Safe4All Living Lab workshop, held in Harare from March 31 to April 2, 2026. This impactful event brought together stakeholders to tackle pressing issues surrounding African Foodsheds and Ecosystems management, focusing on migration and climate resilience. The workshop delivered profound insights into thunderstorm nowcasting and data integration, hailed as game changing tools in modern weather forecasting. Participants explored storytelling as a powerful tool for climate change communication, showcasing how narratives can amplify local experiences, strengthen resilience, and mobilize collective action.

A highlight of the event was farmers engaging with the Uliza-Wi Chatbot, a platform providing vital weather forecasts that boost agricultural productivity. The event attracted strong representation from key institutions, including the Zimbabwe National Water Authority, Agricultural Research and Development Services, and Bindura University of Science Education. The SAFE4ALL project is a collaborative effort with the Zimbabwe Farmers' Union and international partners, aiming to address food security, disaster management, and migration challenges exacerbated by climate change. This initiative complements other climate resilience projects, focusing on irrigation rehabilitation, climate smart farming, and rural value chain expansion to build a more resilient future.

A group interactive session during the Living Lab Workshop, and MSD Director Mrs. Manzou speaking

Clear Communication Saves Lives

Zimbabwe's meteorologists have strengthened their ability to provide clear and actionable weather forecasts, thanks to a partnership with Sweden. The collaboration aims to enhance the country's meteorological services, focusing on forecasting, data management, and early warning systems. A team of experts from Meteorological Services Department of Zimbabwe recently underwent training in Sweden, including a hands on media training at SVT, Sweden's national broadcaster. This will enable them to better communicate weather information to the public, helping communities prepare for climate related hazards.

The training is expected to improve Zimbabwe's forecasting capacity, enabling communities, farmers, and decision makers to plan and prepare for climate impacts. This comes as Zimbabwe faces increasing climate related challenges, including droughts and floods. The collaboration is part of Sweden's long term development cooperation with Zimbabwe, aimed at strengthening the country's meteorological and hydrological services. By providing clear and timely weather forecasts, Zimbabwe can mitigate the impact of extreme weather events, support agricultural planning, and ultimately save lives.

MSD personnel including the Director posing for a photo at SMHI premises

Bridging the Data Gap: Enhancing Climate Services for Zimbabwe's Farmers

Following specialized training in February 2026, a major initiative has successfully deployed localized climate and agricultural advisory products across Manicaland, Masvingo, and Matabeleland South. This effort, supported by the United Nations Development Programme Green Climate Fund project "Building climate resilience for agricultural livelihoods for southern Zimbabwe", focused on transforming raw and complex meteorological data into practical tools for 135 Farmer Field School Extension Officers.

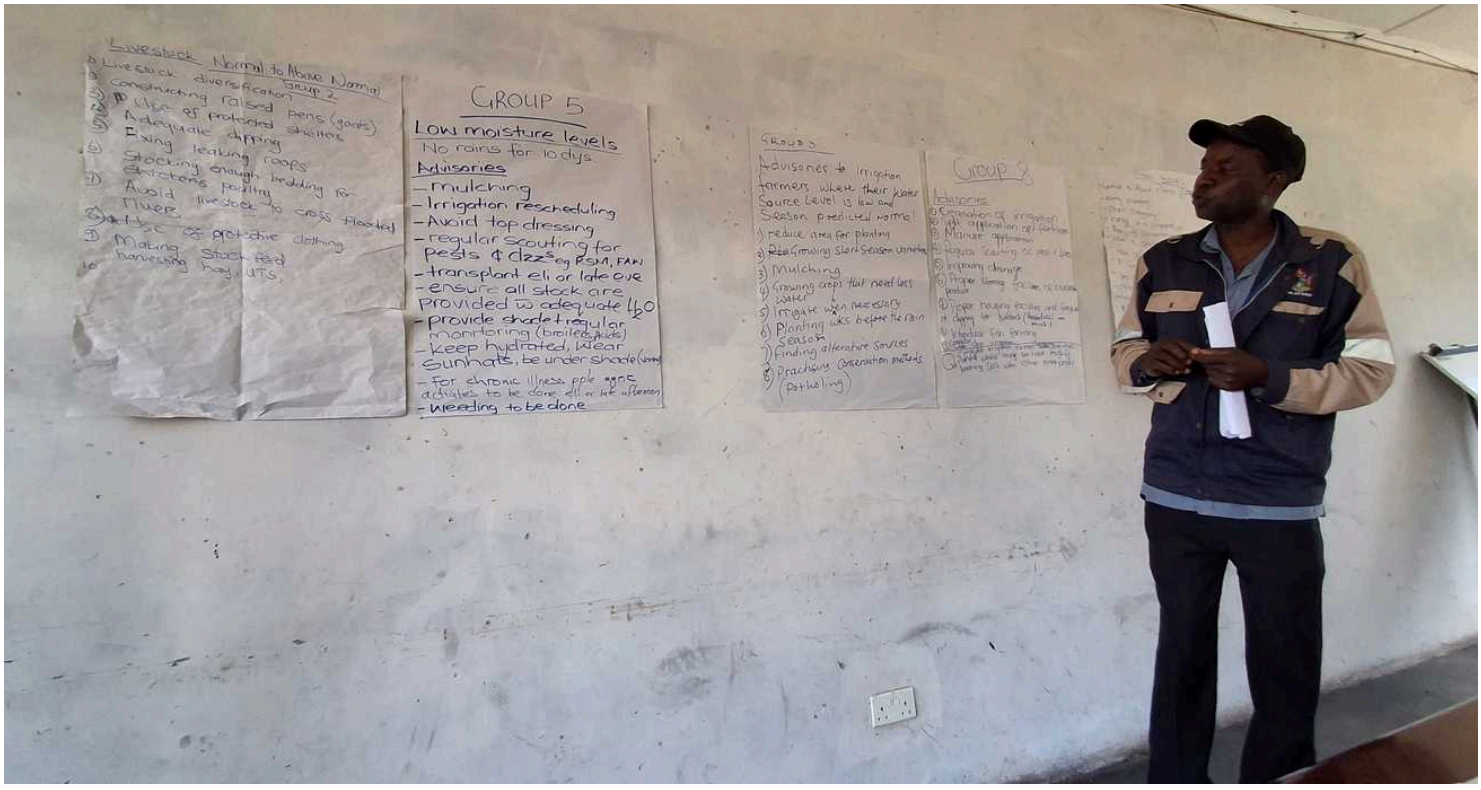
Between March 30 and April 1, 2026, interactive sessions were held at regional research and agricultural institutions. These workshops were designed to ensure that the officers, who represent 135 operational wards, can effectively apply new data to real world farming decisions. A key highlight of the sessions was the presentation of advanced methodologies, including satellite data debiasing and the implementation of virtual weather stations. These techniques significantly improve data accuracy and spatial coverage, ensuring that even remote areas receive reliable climate information. To test these tools, participants engaged in scenario-based exercises, creating mock advisory bulletins to simulate the challenges farmers face during the growing season. Extension officers showed a high level of proficiency and enthusiasm for products that provide immediate operational value, including, root zone soil moisture, water balance, crop stress indicators and irrigation trigger maps.

Agriculture extension officers drafting mock advisories at Makoholi Research Station

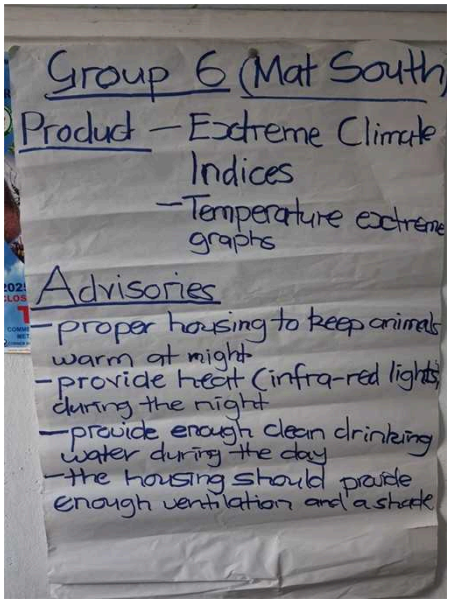
These products are viewed as essential for daily decision making, helping farmers determine exactly when to irrigate or how to manage moisture levels effectively. The feedback gathered from these sessions provides a roadmap for the full operational rollout. Extension officers suggested several enhancements to make the maps more intuitive, such as using standard calendar dates, applying clear class breaks on map legends, and overlaying local landmarks like irrigation schemes, roads, and markets.

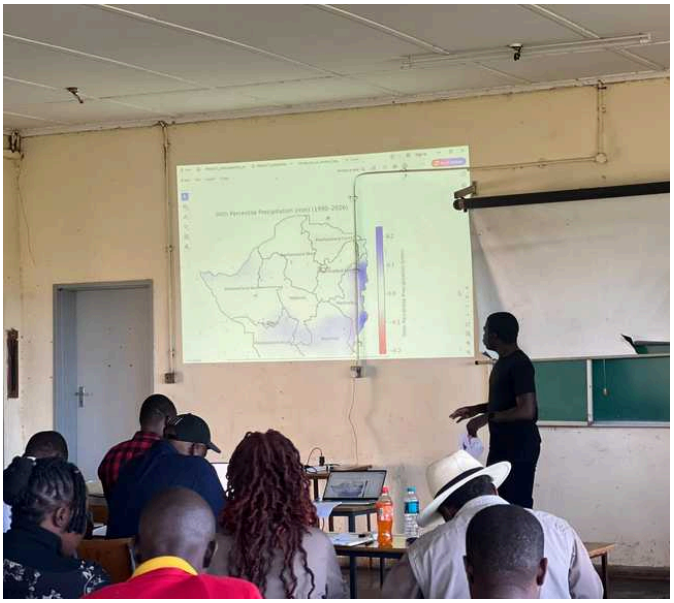
Bridging the Data Gap: Enhancing Climate Services for Zimbabwe's Farmers [continued...]

There is also a strong demand for district level views that provide broader geographic context. To further increase the practical impact, future iterations will look to incorporate specific crop type tailoring and actionable guidance, such as quantifying irrigation requirements. In terms of delivery, the preference was clear. The vast majority of extension officers advocated for digital distribution channels, specifically WhatsApp, to ensure that climate advisories are received and shared instantly. By integrating these localised products with ten day forecasts, the initiative aims to provide a comprehensive, accessible, and highly effective support system for Zimbabwe's agricultural community.



One of the extension officers presenting their mock advisory during one of the interactive sessions

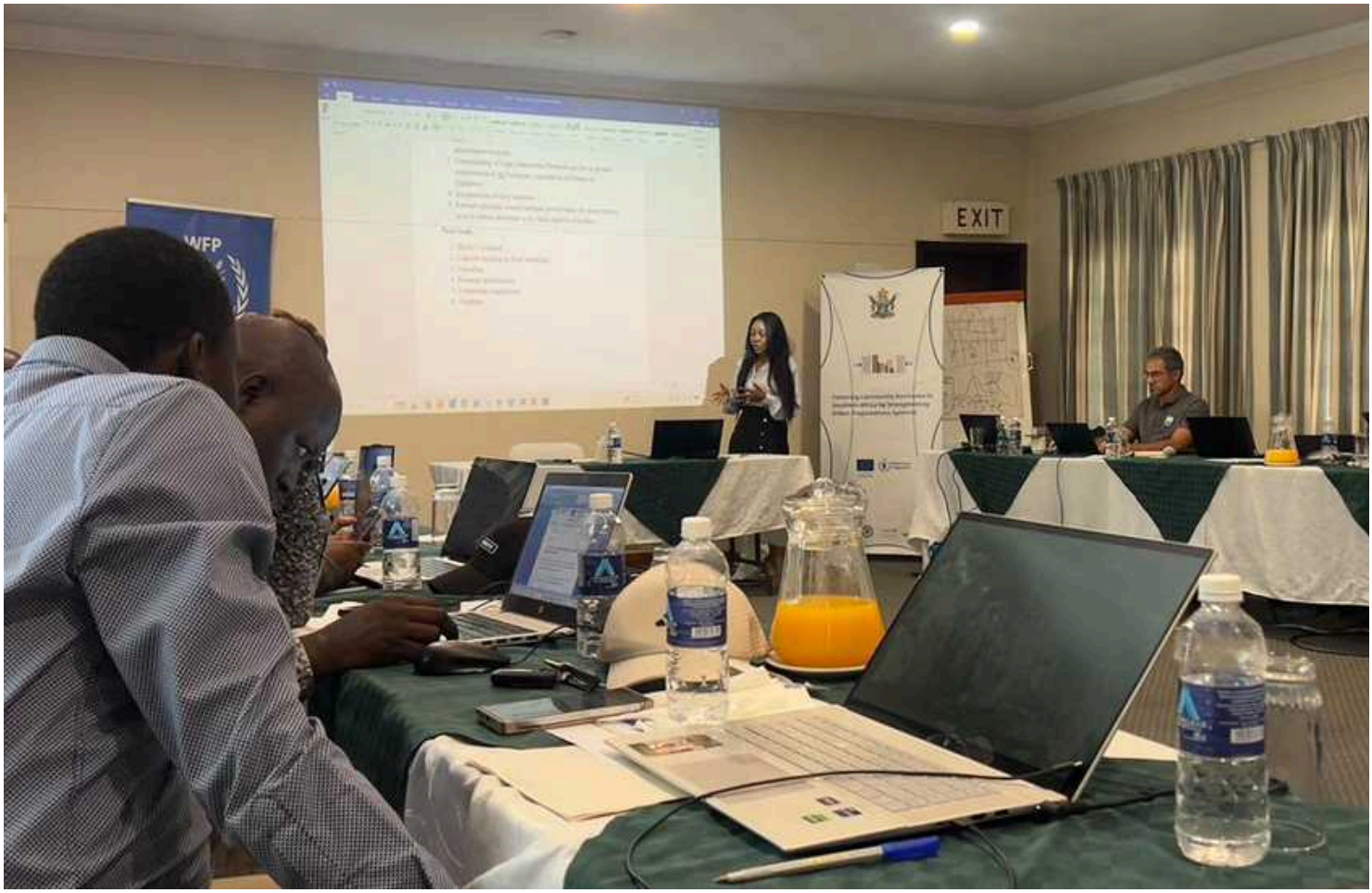




Zimbabwe Strengthens Urban Flood Preparedness Through Innovation and Technology

As climate change continues to intensify extreme weather events across Southern Africa, the need for smarter and faster flood preparedness systems has never been more pertinent. In response to growing urban flood risks, the Meteorological Services Department, together with the World Food Programme (WFP) and technical partners, recently held a technical review workshop in Harare under the “Fostering Community Resilience in Southern Africa by Strengthening Urban Preparedness Systems” (SAIO) initiative.

The review brought together stakeholders working to strengthen urban resilience through flood mapping, drone technology, advanced forecasting systems, and modern early warning platforms. The initiative is helping transform how flood risks are monitored, understood, and communicated in vulnerable urban communities across Zimbabwe.

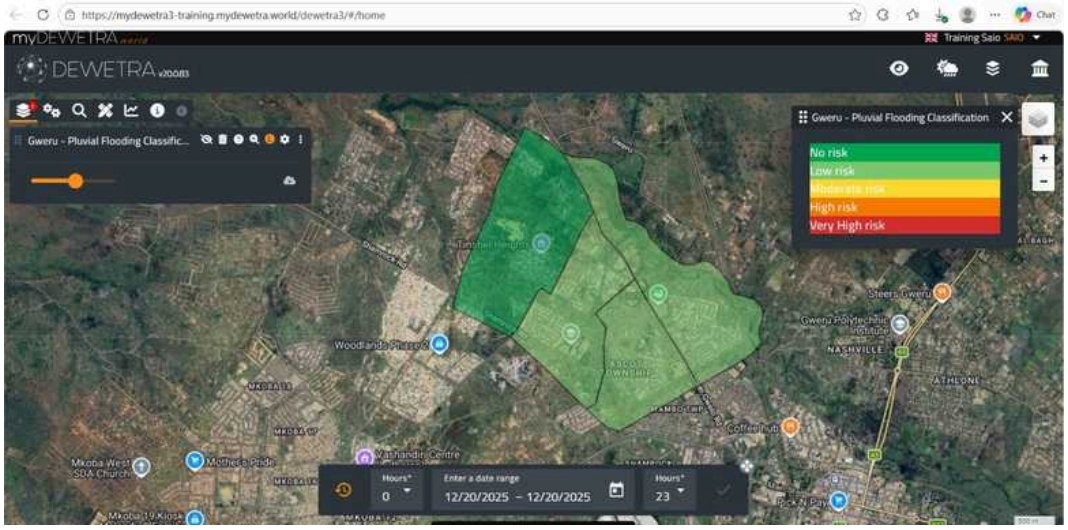


Group presentations addressing the achievements, lessons learnt and next steps of the project.

One of the major highlights of the project has been work carried out in the Ascot area of Gweru, which was identified as highly vulnerable to urban flooding. Using advanced hydraulic simulations, the project developed detailed flood hazard maps capable of showing how floodwaters may spread during heavy rainfall events. These products are expected to support disaster preparedness, urban planning, and community safety.

Zimbabwe Strengthens Urban Flood Preparedness Through Innovation and Technology [continued…]

Participants also reviewed an operational forecasting system that combines global weather forecasting models with hydraulic modelling to provide real-time flood risk information through the DEWETRA platform. This represents an important shift from simply forecasting rainfall to understanding the possible impacts floods may have on communities, infrastructure, and livelihoods.



Dewetra dashboard showing pluvial flooding classification for Ascot area in Gweru.

Dewetra dashboard showing pluvial flooding extent for schools in Ascot, Gweru

As Zimbabwe continues to experience more frequent climate-related hazards, initiatives such as these are expected to play an important role in strengthening flood forecasting, disaster preparedness, and impact-based early warning systems. The project demonstrates how science, technology, and collaboration can work together to help build safer and more resilient communities. The workshop concluded that the integration of hydraulic modelling, drone-based surveys, and operational forecasting systems provides a strong foundation for improving urban flood preparedness in Zimbabwe. Continued collaboration between WFP, CIMA Foundation, MSD, DCP, ZINWA, and ZINGSA will be critical in ensuring the sustainability and operationalisation of the system as the project moves into its final phase.

Strengthening Resilience: Preparing for the EW4All National Action Plan Launch

As we move towards the finalization of our strategic climate objectives, the department is prioritizing the Early Warnings for All (EW4All) initiative to ensure every citizen is protected by life-saving warning systems. We are currently in the advanced stages of preparing for the formal launch of the National Action Plan, a critical framework designed to bridge gaps in risk knowledge, monitoring, and communication. This upcoming launch serves as a vital call to action for all stakeholders to align their efforts in disaster risk reduction and climate adaptation. By building robust multi-hazard early warning systems today, we are not only safeguarding lives and livelihoods but also fostering a more resilient and informed nation in the face of an evolving climate.

Pillars of The Early Warnings For All Framework

Pillar 1: Disaster risk knowledge

The Leadership: The United Nations Office for Disaster Risk Reduction (UNDRR)

Key Activities:

- Building risk knowledge through training.
- Using disaster loss and risk data to improve forecasting and anticipatory action.
- Developing new tools, including risk information systems and AI innovations.
- Strengthening governance, coordination, and national early warning implementation plans.

Pillar 2: Detection, observation, monitoring and forecasting

The Leadership: The World Meteorological Organization (WMO)

Key Activities:

- Collecting and freely exchanging data from the Earth's surface and space globally.
- Running advanced numerical models on supercomputers to simulate Earth System interactions (weather, oceans, hydrology, cryosphere).
- Passing predictions down from global to regional and national levels.
- Coordinating with National Meteorological and Hydrological Services to deliver local forecasts.

Pillar 3: Warning dissemination and communication

The Leadership: The International Telecommunication Union (ITU)

Key Activities:

- Strengthening last-mile connectivity and integrating multi-channel communication (radio, TV, social media, sirens, mobile phones, satellite).
- Ensuring alerts reach all people at risk in a timely, reliable, and scalable manner.
- Promoting an inclusive, people-centered approach that uses community-based infrastructures.
- Establishing locally-led feedback mechanisms to ensure warnings are trusted, understood, and actionable, especially for vulnerable groups.

Pillar 4: Preparednesss and response capabilities

The Leadership: The International Federation of Red Cross and Red Crescent Societies (IFRC)

Key Activities:

- Integrating anticipatory action into disaster risk management plans, contingency plans, and SOPs
- Testing early warning and response systems regularly.
- Providing training and capacity strengthening to relevant stakeholders.
- Strengthening institutional and operational capacities for preparedness and early action.
- Ensuring at-risk communities are well-informed on specific actions to protect livelihoods.

Have You Heard About Virtual Weather Stations? Let's Talk About Them

Traditionally, a weather station is an unmistakable physical object: a collection of sensors, anemometers, and thermometers, you can see with your eyes capturing the raw elements of a specific place on earth. However, as meteorological technology evolves, a new member has emerged. The Virtual Weather Station (VWS) is shifting from being a digital interface for physical hardware to becoming a complex algorithmic estimation workflow which can provide data where no physical stations are available. A virtual weather station is an integration of techniques designed to download and extract meteorological data to estimate weather conditions in locations where no physical station exists.

Instead of relying on a single sensor at a specific coordinate, a VWS utilises a gridded output from satellite, reanalysis and machine learning datasets such as CHIRPS, ERA5, CMORPH and PERSIANN. Since these datasets are not accurate due to errors associated with estimation, they are initially bias corrected using methods such as mean bias correction and quantile mapping. This is followed by extracting data from the virtual station coordinates which are generated using factors such as proximity to large scale water bodies, elevation, distance from a physical station and average local rainfall.

They are generated in locations where errors are minimised, for example a certain distance away from large scale water bodies such as lakes, as they modify the remotely sensed signals for parameter estimations. A VWS can be generated for any point on Earth and unlike physical stations, which can fail due to battery loss or hardware damage, it maintains a complete time series. It can draw from multiple redundant data sources to ensure there are no gaps in the record. A virtual station also offers the same range of solutions as an actual station, estimating all essential parameters like temperature, and rainfall which are necessary for decision making in different industries.

While the Virtual Weather Station represents a massive leap forward in accessibility and data availability, it is not a total replacement for physical sensors. For some locations such as the Eastern highlands of Zimbabwe where the complex terrain makes it hard for satellites to estimate parameters, physical stations remain the only way to achieve 100% certainty. However, as a tool for filling the gaps in our global network, the VWS is an indispensable bridge between the physical world and the digital future of meteorology.

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Minimizing Risk Through Science