

Climate Action

How technology, anticipatory action are transforming response to floods

The science behind the system is straightforward but powerful. Automatic weather stations continuously measure rainfall, temperature, air pressure and humidity, providing round-the-clock data. Unlike traditional methods that relied on manual readings, these stations capture changes as they happen.

BY TREVOR LUTALO

In the flood-prone districts of western Uganda, disasters have long followed a familiar pattern.

Heavy rains fall on the slopes of the Rwenzori Mountains, rivers swell with little warning, and within hours, communities along the River Nyamwamba in Kasese, or the Rivers Semuliki in Bundibugyo and Ntoroko, are submerged.

For years, response came only after the damage was done, homes destroyed, crops washed away, and livelihoods disrupted, with over 6,900 households severely hit in 2024. Now, that pattern is beginning to change.

Across Kasese, Bundibugyo and Ntoroko, a shift is underway.

It is not driven by a single intervention, but by a layered system combining automatic weather stations, radar-based river monitoring and community-led anticipatory action.

Together, these are reshaping how floods are understood, predicted and managed in one of Uganda's most climate-vulnerable regions.

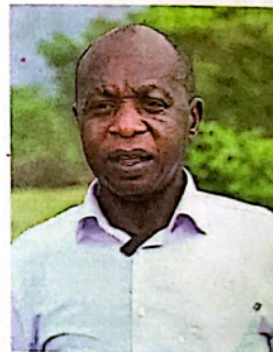
At the centre of this shift is the early warning centre at the Albert Water Management Zone offices in Kabarole District.

Inside, hydrologists monitor screens tracking weather and river systems in real time, translating streams of data into decisions that can determine whether communities stay or evacuate.

"In the early warning centre, we are looking at weather extremes around the Rwenzori region. We have six automatic weather stations and radar sensors that collect weather parameters and water levels, then transmit the information here," says Mr Frank Kigozi, a senior hydrological inspector at the Ministry of Water and Environment.

The monitoring network stretches across the region. Automatic weather stations are installed in Kasese,

An automatic weather station installed at the Ntoroko District headquarters. The station relays data without manual monitoring. PHOTOS/TREVOR LUTALO



"This was the major point where water would enter the community. When it flooded, it affected very many people across several sub-counties,"

Mr Herbert Kamuhanda, Ntoroko District environment officer.

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