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| **Abstract / Content summary** | Throughout its history, Papua New Guinea (PNG) has faced recurrent agricultural droughts, imposing considerable strain on both livelihoods and the economy. Particularly severe droughts have been associated with El Niño climate patterns. During these episodes, PNG becomes especially
vulnerable to extended periods of aridity and diminished precipitation. Historically, humanitarian assistance for these events has primarily focused on responding to emergencies after an agricultural drought has been declared and communities have already been impacted. Here, we developed a proactive agricultural drought-triggering method for anticipatory action (AA) in PNG to offer a more sustainable and cost-effective approach to address this hazard. Our AA uses weather forecasts and risk data to identify and implement mitigative actions before a disaster occurs. The research details a stepby-step guide from early warning to action implemented by the Food and Agricultural Organization
of the United Nations and the Government of Papua New Guinea. This preemptive disaster risk management initiative integrates a combined drought index (CDI) with specific thresholds and tailored anticipatory actions based on crop calendars. Moreover, the developed CDI provides a 3-month lead time for implementing AA to reduce the impact of the agricultural drought. During the ElNiño-induced drought event that began in 2023, the CDI was tested and the AA was piloted for the first time.
Keywords: early warning; artificial intelligence; machine learning; early action; forecast-based financing; food security; agricultural drought; Papua New Guinea |
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