



PHOTO AP PHOTO

WLE.CGIAR.ORG

7 MANAGING WATER VARIABILITY

IMPORTANCE

The familiar extremes of water variability (floods and droughts) have always resulted in extensive crop damage, livestock losses and human suffering and loss of life. Global warming is now introducing a higher degree of variability into what were once stable seasonal variations. These new and unpredictable variations threaten the hard won gains we have made toward sustainable agriculture and development.

PROBLEM

The challenge is to mitigate the negative impacts of variability while at the same time exploiting benefits. New solutions are required such as 'conjunctive' surface and groundwater management, and underground storage of floodwater or excess water. Investments must be guided by sound economic, social and environmental principles to ensure maximum social benefits and to safeguard essential ecosystem services.

“Water-resource variability is a huge threat to food security and livelihoods in developing countries. WLE seeks to help countries manage flood and drought risks, to maintain and improve livelihoods and ecosystem services.”

DONALD BLACKMORE, CHAIR OF IWMI BOARD OF GOVERNORS

Every \$1 invested in pre-disaster mitigation or resilience reduces the cost of damage from these extreme weather events by \$4, and by as much as \$10 counting indirect losses.



Yet, 90% of aid is delivered after a flood or drought had occurred. Countries least able to afford losses are losing the most.



Economic losses from disasters since 2000 are in the range of \$2.5 trillion, a figure at least 50 percent higher than previous international estimates

WHAT WLE IS DOING

WLE researchers help decision makers manage water variability and encourage equitable benefit-sharing. An overriding focus is to alleviate the negative impacts of floods and droughts on poor people by working with investors and governments to improve flood-drought management in a basin-wide context. WLE also develops tools that reduce tradeoffs along the water-energy-food nexus with a focus on increased resource-use efficiency and sustainability. WLE collaborates closely with CGIAR's research program on Climate Change, Agriculture and Food Security. Researchers also work closely with national basin authorities, national disaster management agencies and international organizations.

Expected Outcomes

By 2017

- Quantified estimates and models applied to at least two geographic regions illustrating the potential of underground storage to reduce flood and drought risks, maintain ecosystem services and improve livelihoods.

By 2025

- Multilateral financial institutions and governments in at least four geographic regions are using a wider set of storage options to address water variability concerns, drawing on solutions identified by WLE.

Sources U.N. Office for Disaster Risk Reduction, U.S. Federal Emergency Management Agency, individual case studies

CONTACT Andrew Noble, WLE Program Director, wle@cgiar.org