

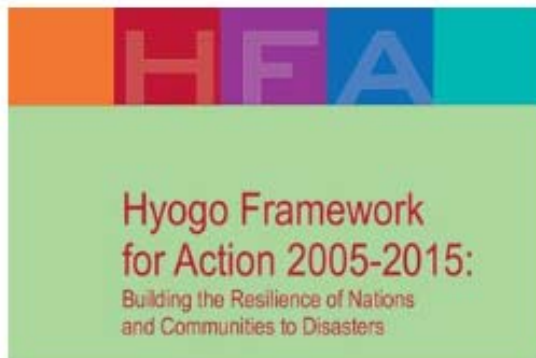
SCIENCE-POLICY INTERFACE –THE ROLE OF RESEARCH ON HYDROLOGICAL PREDICTION FOR DROUGHT AND FLOOD EARLY WARNING SYSTEMS IN SOUTHERN AFRICA

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Background

- Effective drought and flood early warning systems are an integral part of efforts worldwide to improve drought and flood preparedness.
- Timely and reliable data and information must be the cornerstone of effective policies and plans.
- It is critical that an integrated approach to climate monitoring be employed to obtain a comprehensive assessment of the status of climate and the flows in the rivers

Hyogo Framework for Action (HFA)



BUILDING THE RESILIENCE OF NATIONS AND COMMUNITIES TO DISASTERS

The HFA is a 10-year plan to make the world safer from natural hazards.

It was endorsed by the UN General Assembly in the [Resolution A/RES/60/195](#) following the 2005 World Disaster Reduction Conference.

[Download the full text of the HFA](#) →

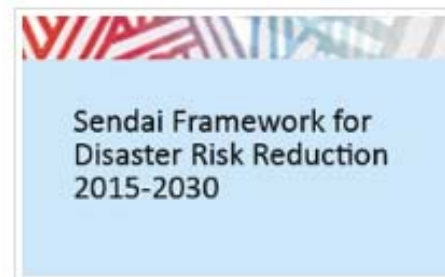
[Download the summary chart of the HFA](#) →

[Download the HFA Mid-term Review](#) →



World Conference for Disaster Reduction
The 10-year Hyogo Framework for Action came out of the World

The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA) is the first plan to explain, describe and detail the work that is required from all different sectors and actors to reduce disaster losses. It was developed and agreed on with the many partners needed to reduce disaster risk - governments, international agencies, disaster experts and many others - bringing them into a common system of coordination. The HFA



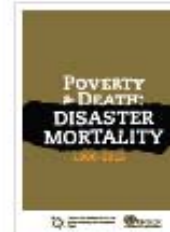
The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the World Conference in Sendai, Japan.



What we do - we campaign.

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Latest Documents



Poverty & Death:
Disaster mortality 1996-2015

This report analyses EM-DAT data of the Centre for Research on the Epidemiology of Disasters regarding

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- Traditionally, many countries have been reactive to disasters experiencing significant losses in lives and livelihoods of their citizens.
- Adoption of the [Hyogo Framework for Action \(HFA\) 2005–2015](https://www.unisdr.org) by 168 countries has led to a paradigm shift in disaster risk management from emergency response to a comprehensive approach which also includes preparedness and preventive strategies to reduce risk.
(<https://www.unisdr.org>)

means reducing loss of lives and social, economic, and environmental assets when hazards strike.

How's your country doing?

[Click here for HFA Progress Reports](#)

Priority Action 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.

Countries that develop policy, legislative and institutional frameworks for disaster risk reduction and that are able to develop and track progress through specific and measurable indicators have greater capacity to manage risks and to achieve widespread consensus for, engagement in and compliance with disaster risk reduction measures across all sectors of society

Priority Action 2: Identify, assess and monitor disaster risks and enhance early warning.

The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and of the ways in which hazards and vulnerabilities are changing in the short and long term, followed by action taken on the basis of that knowledge.

Priority Action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

Disasters can be substantially reduced if people are well informed and motivated towards a culture of disaster prevention and resilience, which in turn requires the collection, compilation and dissemination of relevant knowledge and information on hazards, vulnerabilities and capacities.

Priority Action 4: Reduce the underlying risk factors.

Disaster risks related to changing social, economic, environmental conditions and land use, and the impact of hazards associated with geological events, weather, water, climate variability and climate change, are addressed in sector development planning and programmes as well as in post-disaster situations.

Priority Action 5: Strengthen disaster preparedness for effective response at all levels.

At times of disaster, impacts and losses can be substantially reduced if authorities, individuals and communities in hazard-prone areas are well prepared and ready to act and are equipped with the knowledge and capacities for effective disaster management.



Climate vulnerable #Philippines due to ratify #ParisAgreement tomorrow. #switch2sendai #MEXICOGP2017 #climatechange bit.ly/2nwD8s4



2h



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- Over the years the response to drought and flood occurrence in southern Africa has largely been a **reactive crisis management approach**, rather than an approach based **on proactive mitigation and preparedness** build around an early warning system.
- We need Integrated (Early Warning) system for adaptation and mitigation to hydrological drought and floods?

FLOODING



Drought





Sowetan LIVE



2 hrs · 🌐

“Early models show Tropical Storm Enawo could be a record breaking Category 5 by early next week, with winds of over 270km/h possible,” the Gauteng Weather service @tWeatherSA warned.



Storm warning off coast of Africa near Madagascar

Role of research

In order to support creation of adequate drought and flood management system, there is therefore need to develop and implement an integrated seasonal hydrological drought or flood prediction system to provide outlooks for water resources at catchment level and conditions nationally and in real-time.

Two main approaches to flood and drought management

- One cannot avoid flood or drought but hydrological extremes can be managed in a sustainable manner.
- **Prevention approach** -include hydraulic works (reservoirs) and meteorological and hydrological modelling to forecast possible hazard evolution and to issue information and recommendations for the exposed population.
- **Crisis management**- this relies emergency plan development and post-crisis management. This requires deep implication of governing institutions - adequate policy development and good coordination between services are key.

Key elements of integral flood and drought management

- i. Scientific basis for flood and drought management
- ii. Assessment of current stage of drought and flood management
- iii. Flood and drought monitoring
- iv. Flood and drought forecasting
- v. Risk assessment
- vi. Developing flood and drought management plan
- vii. Flood and drought policy development
- viii. Education
- ix. Awareness raising
- x. Review and evaluation

Effective EWS has 4 components

- Detection, monitoring and forecasting the hazards;
- Analyses of risks involved;
- Dissemination of timely warnings - which should carry the authority of government;
- Activation of emergency plans to prepare and respond.

Recommendations

- Early Warning Systems (EWS) are well recognized as a critical life-saving tool for floods, droughts, storms, and other hazards.
- Triggers for specific mitigation and response actions are often unreliable because of the inadequacy of **monitoring** and **detection tools** and inadequate linkages between **indices** and **impacts**.
- Integrated assessment **products** are preferred, but few attempts have been made to integrate **meteorological and hydrological** information into a single product for purposes of detecting and tracking flood and drought conditions and management, hence this is an area where research must focus especially in Southern Africa.

THANK YOU!