

Floods and Droughts in the Zambezi River Basin What Can Be Done?

Introduction

The Zambezi River Basin is vulnerable to floods and droughts due to cyclical weather patterns made worse by land use changes, increasing pressure on land, and climate variability and change. The rising frequency and severity of floods and droughts in the basin has led to increased human and environmental impacts that far exceed the capacity of communities to cope using their own resources.

The 2015/16 drought, the worst on record, resulted in loss of life, damage to property and infrastructure, transmission of water-borne diseases, poor harvests and loss of livestock, leading to food insecurity and economic loss. For example, an estimated US\$261 million was required by the Angolan government to respond to the impact of the 2015/16 drought, while Malawi needed about US\$380 million for its multi-sectoral response.

During the severe 1991/92 drought, reduced hydropower generation from the Kariba Dam resulted in an estimated US\$102 million reduction in Gross Domestic Product (GDP), US\$36 million reduction in export earnings, and the loss of 3,000 jobs in Zimbabwe. The 2000 Cyclone Eline-induced floods resulted in infrastructure damage worth more than US\$273 million, and agricultural production loss of US\$295 million in Mozambique.

Flood-prone areas in the Zambezi Basin include the Upper Zambezi in Angola, the confluence of Cuando/Chobe Rivers in Botswana, the Zambezi Region of Namibia, Kafue Flats in Zambia, and the Lower Shire in Malawi, as shown in Map 1. Portions around the Zambezi Delta in Mozambique are extremely flood-prone.

Areas with high frequency of dry periods between 1995 and 2012 are shown in Map 2. These include northern parts of the basin in Angola and Zambia, as well as in Malawi and northern Mozambique.

Flood-prone Areas in the Zambezi Basin

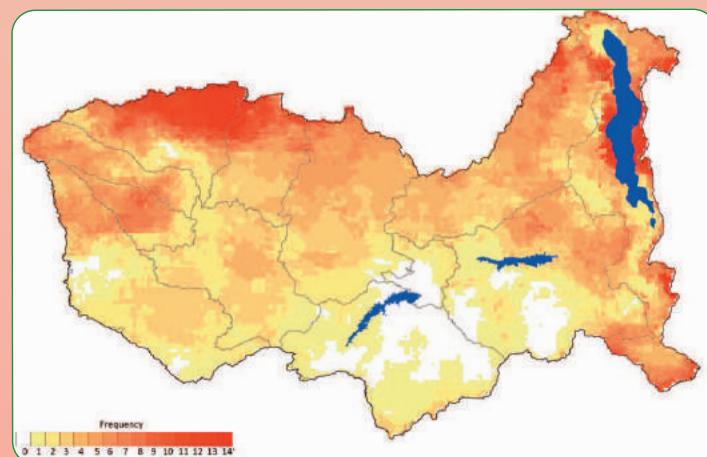
Map 1



Adapted from, *Status Report on Integrated Flood and Drought Mapping in the Zambezi Basin 2015*, Figure 6.1

Occurrence of Severe Dry Periods during First Quarter of Year, 1995–2012

Map 2





What has worked in the Zambezi Basin?

Strengthened Cooperation

The signing of the Zambezi Watercourse Commission (ZAMCOM) Agreement in 2004 by the eight Riparian States (Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe) presents opportunities for strengthening cooperation, coordination and implementation of resilience strategies across the basin. One of the functions of ZAMCOM is to strengthen cooperation among Member States in the sustainable utilization of water resources, including monitoring implementation of disaster management strategies.

Establishment of Disaster Management Institutes

Most Riparian States have established disaster risk reduction and management programmes, early warning systems and improved crop research on drought-resistant varieties as well as action plans on climate change resilience. Malawi, Mozambique, Namibia, Zambia and Zimbabwe now have national disaster management programmes in place. The move has been influenced by a growing need to focus more on early warning and preparedness rather than responding to the impacts. For example, the National Disaster Management Institute in Mozambique offers a change in approach from reaction to preparedness and risk reduction.

What Can Be Done?

- Strengthen basin-wide data collection, information exchange and dissemination in the Zambezi Basin for floods and drought risk management at local, national and basin levels;
- Increase budgetary allocations for the expansion and maintenance of national hydro-meteorological observatories while strengthening the SADC Hydrological Cycle Observing System (HYCOS);
- Ensure that legal frameworks give equal prominence to prevention and response;
- Strengthen coordination in the operation of dams in the Zambezi Basin to realise full benefits in flood prone areas;
- Utilize tools such as the Flood Atlas and African Flood and Drought Monitor to enhance disaster risk reduction;
- Integrate capacity-building in climate science into formal educational systems;
- Strengthen gender mainstreaming in flood and drought risk management; and
- Mainstream indigenous knowledge systems into flood and drought policies and strategies to facilitate the development of local solutions.

Conclusion

As the impact of floods and drought transcends national boundaries, basin countries need to focus more on integrated flood and drought management at basin level rather than working in isolation. Past experiences have demonstrated that any one country cannot effectively address water-related climate challenges alone since regional weather events often largely determine the internal situation.

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