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Analysis of institutional mechanisms that support community response to impacts of floods in the middle-zambezi river basin, Zimbabwe

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ABSTRACT

In recent years, the frequency of occurrence of floods has increased in Southern Africa. An increase in the frequency of extreme events is partly attributed to climate change. Floods negatively impact on livelihoods, especially those classified as poor, mainly by reducing livelihood options and also contributing to reduced crop yields. In response to these climatic events, governments within Southern Africa have formulated policies which try to mitigate the impacts of floods. Floods can be deadly, often occurring at short notice, lasting for short periods, and causing widespread damage to infrastructure. This study analysed institutional mechanisms in Mbire District of Zimbabwe which aim at mitigating the impact of floods. The study used both quantitative (i.e. questionnaires) and qualitative (i.e. key informant interviews, focus group discussions and observations) data collection methods. Secondary data such as policy and legislation documents and operational manuals of organisations that support communities affected by disasters were reviewed. Qualitative data was analysed using the thematic approach and social network analysis using UCINET 6. Quantitative data were analysed using SPSS 19.0. The study found out that there exists institutional framework that has been developed at the national and local level to support communities in the study area in response to the impacts of floods. This is supported by various pieces of legislation that are housed in different government departments. However, the existing institutional framework does not effectively strengthen disaster management mechanisms at the local level. Lack of financial resources and appropriate training and skills to undertake flood management activities reduce the capacity of communities and disaster management organisations to effectively mitigate the impacts of floods. The study also found that there are inadequate hydro-meteorological stations to enable accurate forecasts. Even in those cases where forecasts predicting extreme weather events have been made, communities have difficulties accessing and interpreting such forecasts due to inadequate communication systems. Such factors reduce the preparedness of communities to deal with extreme weather events.

1. Introduction

Extreme events are the most devastating natural hazards in Southern Africa. Over the last twenty years, the occurrence of flood events in the region has increased significantly (Mirza, 2003). At the regional level, flood events account for 70% of economic losses linked to natural hazards in Southern Africa (World Bank, 2008). At the community level, floods negatively affect livelihoods of the poor majority and weaken their coping and survival capacities (Mirza, 2003; Chenje, 2000). Studies predict that climate change will result in increased intensity and frequency of floods in the region (Chikozho, 2010).

A flood is an unusual high-water period in which water overflows its natural or artificial banks onto normally dry land (UNDP, 2009). In some parts of Southern Africa, floods are not only a result of high precipitation, but they are also related to the operation of dams in the river basin (Smithers et al., 2001).Occurrence of

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floods causes destruction of property, crops and livestock, loss of lives and livelihoods, displacement of communities and also induces the spread of waterborne diseases, among others things. Floods hinder socio-economic development of the region. For instance in 2000, floods which occurred in Mozambique resulted in damage estimated to be US$550 million and lowered the GDP growth rate from 7.5% to 1.5% (World Bank, 2005). In the light of the impacts of floods on development in Southern Africa, governments in the region are taking a pro-active approach to disaster management, with a focus on mitigating the impacts of floods. Policy and legislative frameworks and institutional platforms for management of floods through the entire cycle of comprehensive disaster management (mitigation, preparedness, response and recovery) have been developed at the regional level (Coppola, 2006). The Southern Africa Development Community (SADC), which is a regional body of states within Southern Africa, has also taken steps to develop measures to mitigate the impacts of floods (Stringer et al., 2009). However, the effectiveness of such regional, national and local institutional mechanisms for management of floods at community level has not yet been adequately assessed and the practical effect of these institutional frameworks merits further investigation. This is particularly important given that, in the recent past, flooding events which have occurred in the region have resulted in loss of life and property. This in a way suggests that there is need to improve the institutional mechanisms which have been put in place to deal with such events. This further strengthens the case for analysing the institutional mechanisms in existence.

It is against this background that this paper analyses the effectiveness of policy, legislative frameworks and institutional mechanisms at national and local levels that support communities' response to the impacts of floods in Zimbabwe. A case study of Kanyemba community, which is located in the middle Zambezi basin is used to provide an in-depth analysis of the effectiveness of policy, legislative frameworks and institutional mechanisms for flood management.

2. Methodology

2.1. Study area description

The study was carried out in Kanyemba, located in Mbire District, one of the administrative districts of Mashonaland Central Province, Zimbabwe. Kanyemba is mostly rural. The area lies to the north of the country in an area which Zimbabwe shares borders with Mozambique and Zambia. Fig. 1 shows the location of the study area. The study area falls under Chief Chapoto and the inhabitants are mainly drawn from the Chikunda Tribe. The 1998 water sector reforms which demarcated Zimbabwe along hydrological boundaries placed the study area under the Manyame Catchment. There are seven catchments in the country.

The climate of Kanyemba is characterised by low rainfall of between 450–650 mm/year. The rainfall season lasts a little over 100 days, generally occurring between November and March. Rainfall is highly variable with frequent and severe dry spells during the crop growing seasons. These dry spells often, lead to seasonal droughts. The area experiences high temperatures averaging 25 °C per day with maximum temperatures reaching 40 °C around October and November. However, temperature drops during winter months and can be as low as 10 °C. High summer temperatures lead to high evaporation rates with mean annual potential evaporation of approximately 2000 mm.

Analysis of the rainfall data for the past two decades from Kanyemba Meteorological Station (Fig. 2) indicates that rainfall in the area is highly variable. More than four seasons in the past two decades registered rainfall below the average rainfall of the area.

The study area is low-lying with an average altitude of 400 m above mean sea level. It has uneven topography with very shallow leptosols and lexisols soils (Bola et al., 2014). The Zambezi River, which forms the northern boundary of the area, is perennial and its flow regimes are, to an extent, dictated by the operation of the hydropower plant at Kariba Dam. The Cahora Bassa Dam is

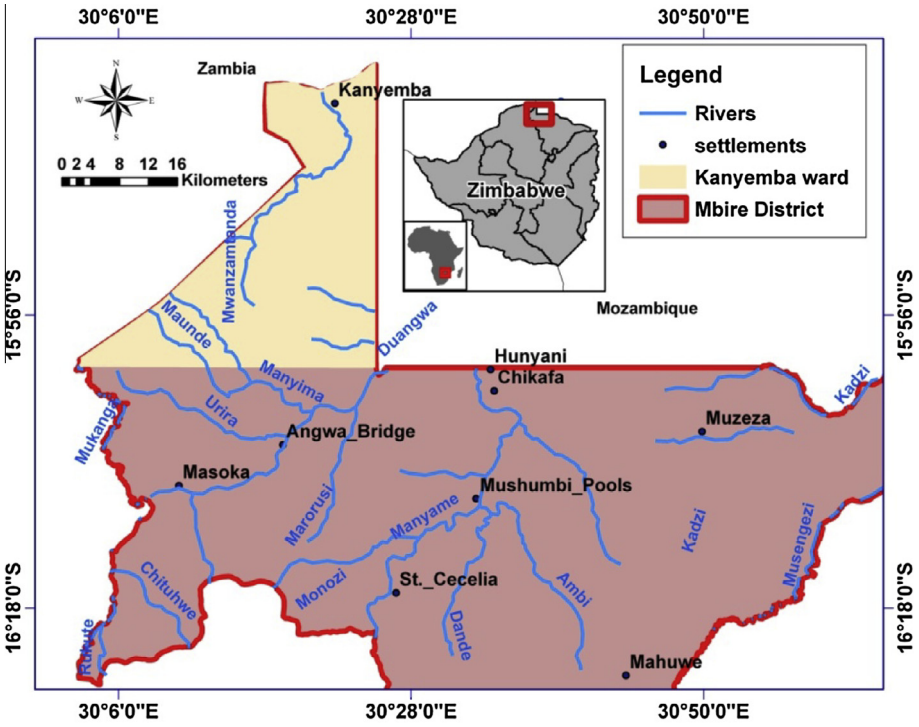

Fig. 1. Location of Kanyemba village in Mbire district of Zimbabwe.