

The impacts of tropical cyclones in Zimbabwe



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ABSTRACT

Extreme events are increasing in their frequency and intensity due to climate change. Zimbabwe has witnessed tropical cyclones with devastating effects. In total, tropical cyclones have affected around 600 000 households in Zimbabwe. Cyclones have led to about 1000 deaths, damage of property valued at USD\$, 5billion, displaced people and damage to the environment.

Key words: impacts, tropical cyclones, Zimbabwe

INTRODUCTION

•Due to climate change, the intensity and frequency of extreme climate events is projected to increase in the future (Brown et al 2012).

•Examples of extreme climate events include droughts, heatwaves, cyclones and wildfires

•There are differentiated impacts of extreme climate events with vulnerable communities which are less adaptive being most affected (Mabaso et al 2021)

•Over the last ten years Zimbabwe, has been affected by a number of cyclones, namely Cyclone Eline 2000, Japhet 2003, Dineo 2017, Tropical storm Chalane 2020, Eloise 2021.

•Cyclones usually enter Zimbabwe from the East and the usual trajectory is shown in Figure 1 (Deprez and Labattut, 2020).

•Provinces mostly affected by cyclones are Midlands, Manicaland, Masvingo and Matebeleland South (Figure 3).

•Tropical cyclones have devastating social, environmental and economic impacts in Zimbabwe.

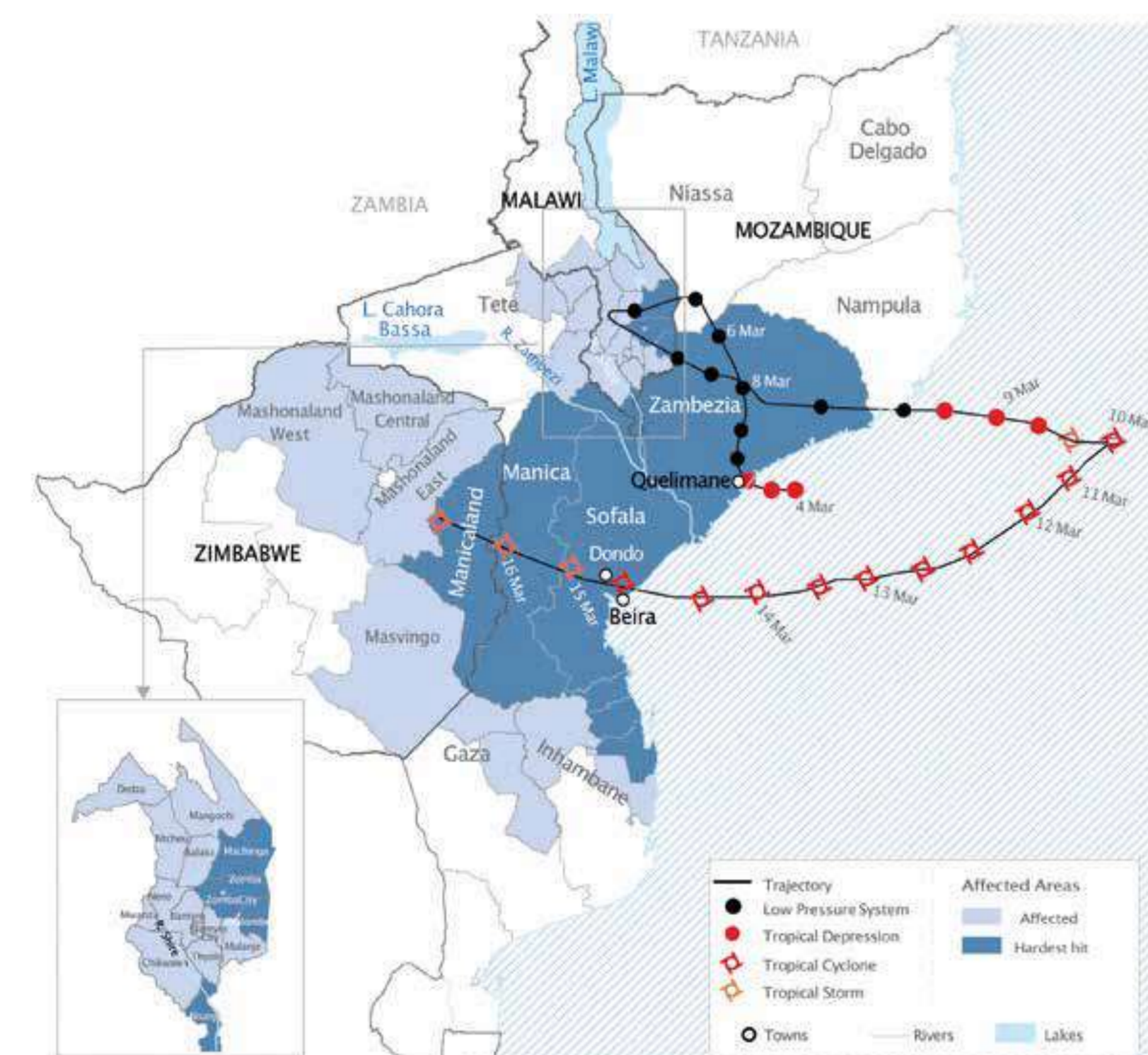


Figure 1: Trajectory of Tropical Cyclone March 2019 (Deprez and Labattut, 2020).

Impacts of cyclones

• From 2000 up to present about 1000 people have lost their lives due to cyclones

• Road infrastructure has been destroyed (Figure 2, Cyclone Idai 1500km was unreachable) (Chatiza, 2019)

• Rivers are affected by landslides, rockslides and mudslides affecting sources of water (Figure 4)

• 1.17 million hectares of forests and 104,620 hectares of protected areas were affected by Cyclone Idai (Chatiza, 2019)

• Cyclones Dineo, Idai and Eline led to more than 115 345 households being affected (Deprez and Labattut, 2020).

Figure 2: Environmental and infrastructural damage due to Tropical cyclone (Source: Chatiza, 2019)



• Cyclone survivors faced post disaster post-traumatic disorders, loss of livelihoods, abandonment and social isolation (Chapungu, 2020).



Figure 4: River covered with rock debris (Chanza, et al 2020)

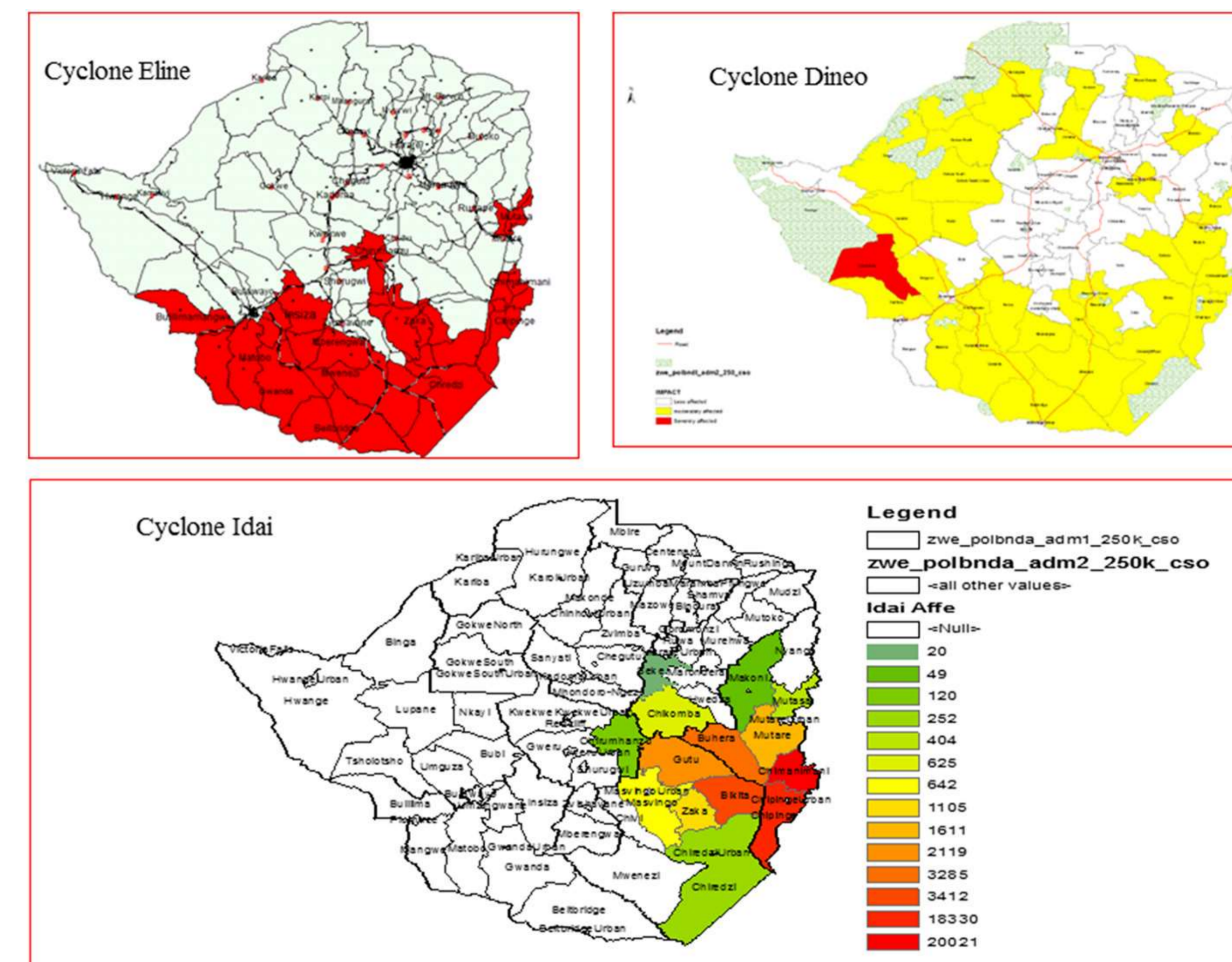


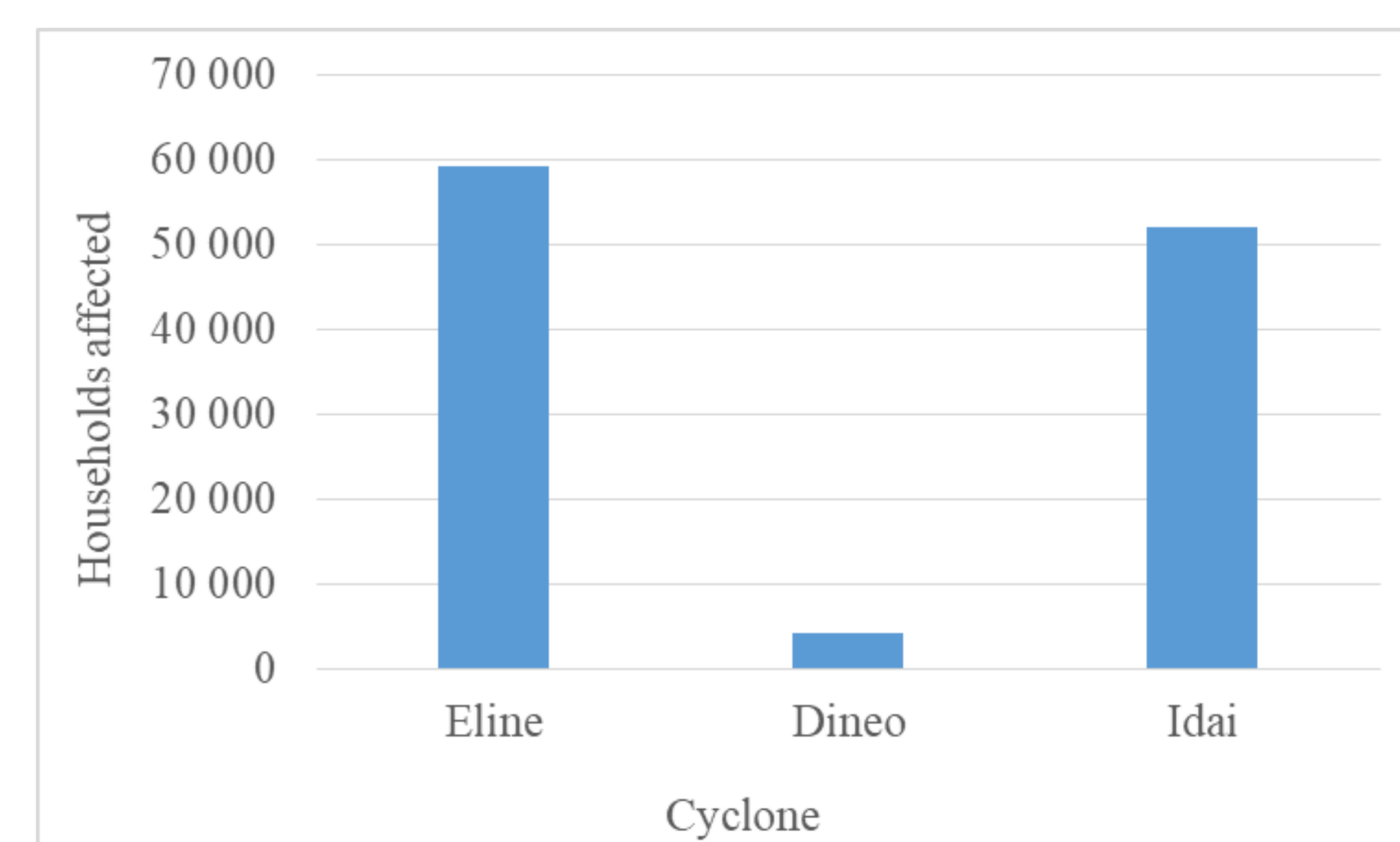
Figure 3: Areas affected by cyclones Eline, Dineo and Idai (Source: Mavhura, 2020)

CONCLUSIONS

• There are increases in the frequency of tropical cyclones in Zimbabwe over the last 10 years.

• Cyclones have led to damages to the environment, human life, infrastructure and social life of the people.

• Government should put in place mechanisms which reduce the impacts of cyclones on vulnerable groups.



References

- Brown, D. et al. (2012) *Climate change impacts, vulnerability and adaptation in Zimbabwe*. 3. London.
- Chapungu, L. (2020) *Mitigating the Impact of Cyclone Disasters: Lessons from Cyclone Idai Fortification of cyclone-vulnerable communities*. Pretoria.
- Chatiza, K. (2019) *Cyclone Idai in Zimbabwe: An analysis of policy implications for post-disaster institutional development to strengthen disaster risk management*. Harare. doi: 10.21201/2019.5273.
- Deprez, S. and Labattut, E. (2020) *Lessons Learnt from CARE's Shelter Responses to Cyclone Idai in Malawi, Mozambique and Zimbabwe*. London.
- Mabaso, A., Chivhenge, E., Zingi, G. K., & Museva, T. (2021). Provision of Green Infrastructure as an Urban Resilience Strategy in Masvingo City. In L. Mhlanga & K. Nyikahadzo (Eds.), *Climate change impact, adaptation and mitigation in Zimbabwe: case studies from Zimbabwe's urban and rural areas* (p. 180). Konrad Adenauer Stiftung & University of Zimbabwe.
- Mavhura, E. (2020) 'Learning from the tropical cyclones that ravaged Zimbabwe: policy implications for effective disaster preparedness', *Natural Hazards*. Springer Netherlands, pp. 1–15. doi: 10.1007/s11069-020-04271-7.
- Reason, C. J. C. and Kiebel, A. (2004) 'Tropical Cyclone Eline and Its Unusual Penetration and Impacts over the Southern African Mainland', *Weather Forecasting*, 19, pp. 789–805.