



Use of Climate information in Disaster Risk Management in *Zimbabwe*



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Institutional Arrangements for Early Warning system

- The major players are the - Meteorological Services Department (MSD) and the Zimbabwe National Water Authority (ZINWA).
- Ministry of Local Government through its decentralised structures, coordinated by the Department of Civil Protection,
- Other players include government extension services (Health , Agritex, Police, Social services) other relevant non-governmental organisations, Local authorities, traditional leadership, communities and schools.

Why early warning?

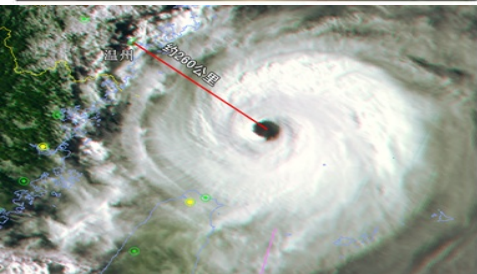
- Basing on some studies carried out in Beitbridge District following Cyclone Eline Disaster in 2000, it was noted that high losses that were experienced were mainly due to lack of awareness of the impending cyclone induced flood.
- The study showed that 60% of the surveyed communities did not get any information about the coming of the cyclone Eline.
- Only 40% of the population knew that a cyclone was to hit Beitbridge through the South African radios and television. Even then those 40% did not know what they were required to do, whether they were in risk areas or not.
- The Meteorological Services department warnings, that were issued through the Zimbabwe television, radio and newspaper did not get to these communities due to lack of appropriate communication infrastructure.

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- It is also believed that flooding in 2000 was exacerbated in some areas down stream like in Beitbridge - Chikwarakwara due to release of water from upstream privately owned dams.
- The opening of dams was not communicated to enable issuance of warnings to the vulnerable communities downstream.
- The study thus revealed the need for an Early Warning system as one of the most important tools for preparedness.
- With adequate lead-time people can be evacuated, certain capital removed for example irrigation pipes.

Hazards requiring Early Warning in Zimbabwe

- Flooding and flash floods
- Tropical cyclones
- Drought
- Mid season dry spells
- Heat waves / Extreme Temperatures
- Thunderstorms
- Hail storms
- Lightning
- Ground frost
- Climate change
- Mist
- Landslides

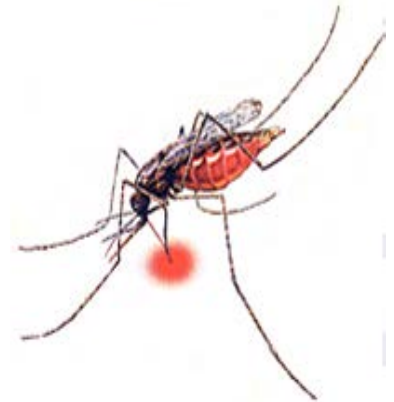


TOUGH CHOICE... Mr Petros Ndambakanga and his wife Rhoda of Kapare Village destroy tobacco plants after a hail storm wreaked havoc in Maganje last week. Scores of farmers have lost tobacco worth thousands of dollars to hailstorm prompting calls from various stakeholders for crop insurance.



Other weather sensitive hazards

- Disease outbreaks
 - Malaria
 - Waterborne diseases
- Weather related accidents
 - Road traffic accidents (poor visibility, slippery roads)



Flash Flooding



Current information provision for DRM

- SARCOF presentation
- National Climate Out Look presentation
- Tropical cyclone mapping and their monthly frequencies,
- Weather bulletins (10 day)
- Extended weather forecasts and alerts (eg severe weather such as tropical cyclones, thunderstorms, hail storms, frost, potential flash flooding)
- Severe weather and flood warning releases,
- Dam operations warnings (opening of flood gates)
- Updates on surface water levels (dams and rivers / catchments)

EXAMPLES

Public awareness campaigns

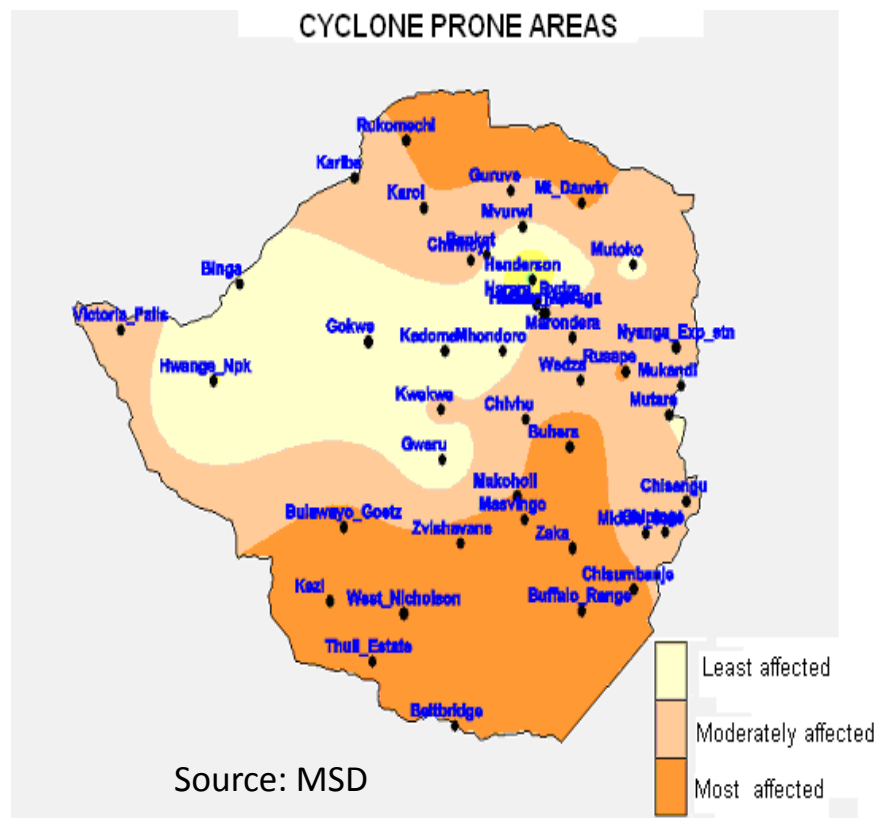
- Seasonal forecasts provide guidance on awareness campaign program on hazards associated with the rainfall season;
 - Targeting
 - Production of relevant materials,
 - Clearing of storm drains
 - Prepositioning of essential supplies in hard to reach areas.



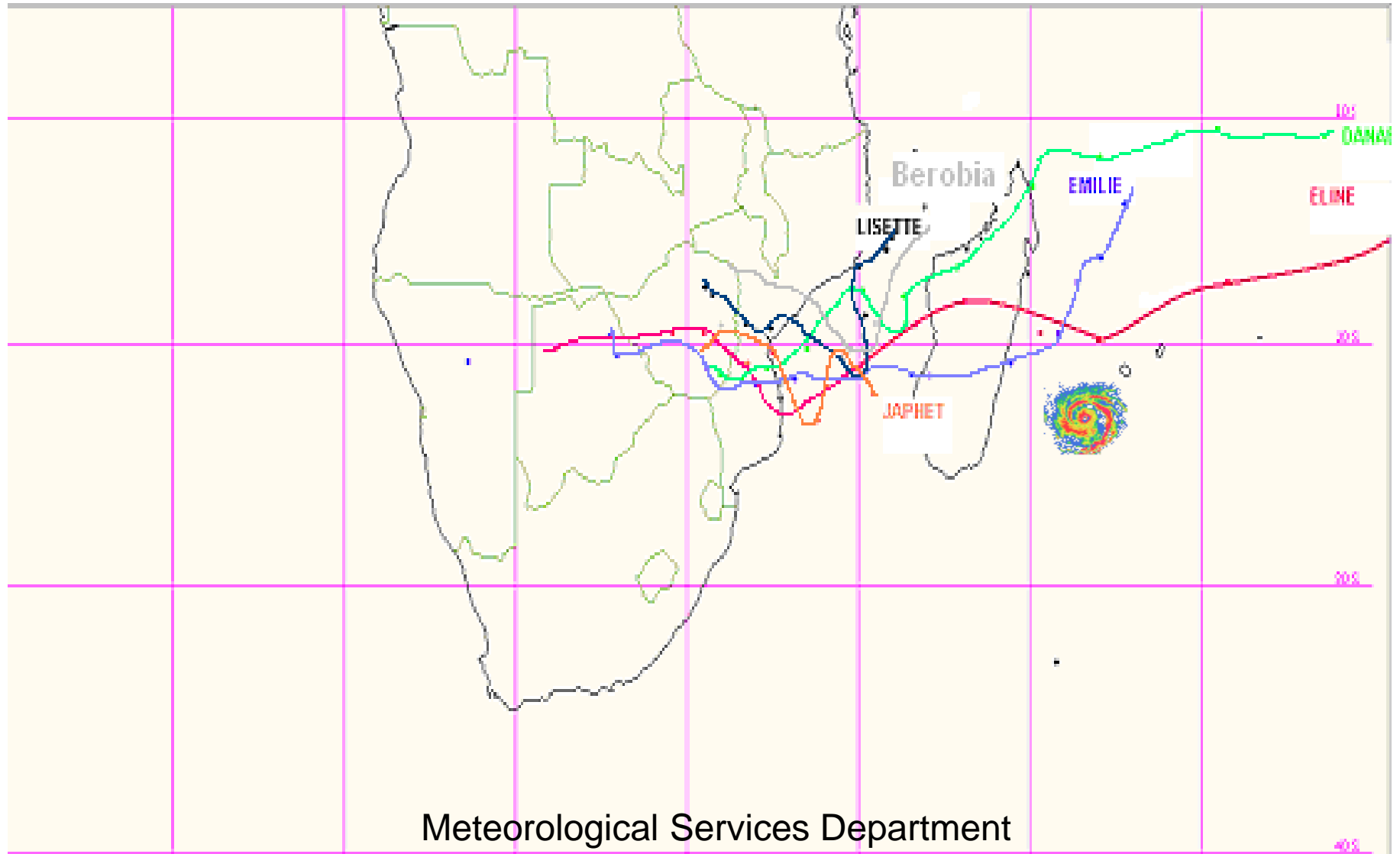
Warnings about pending cyclones

Cyclone prone areas and their monthly frequency

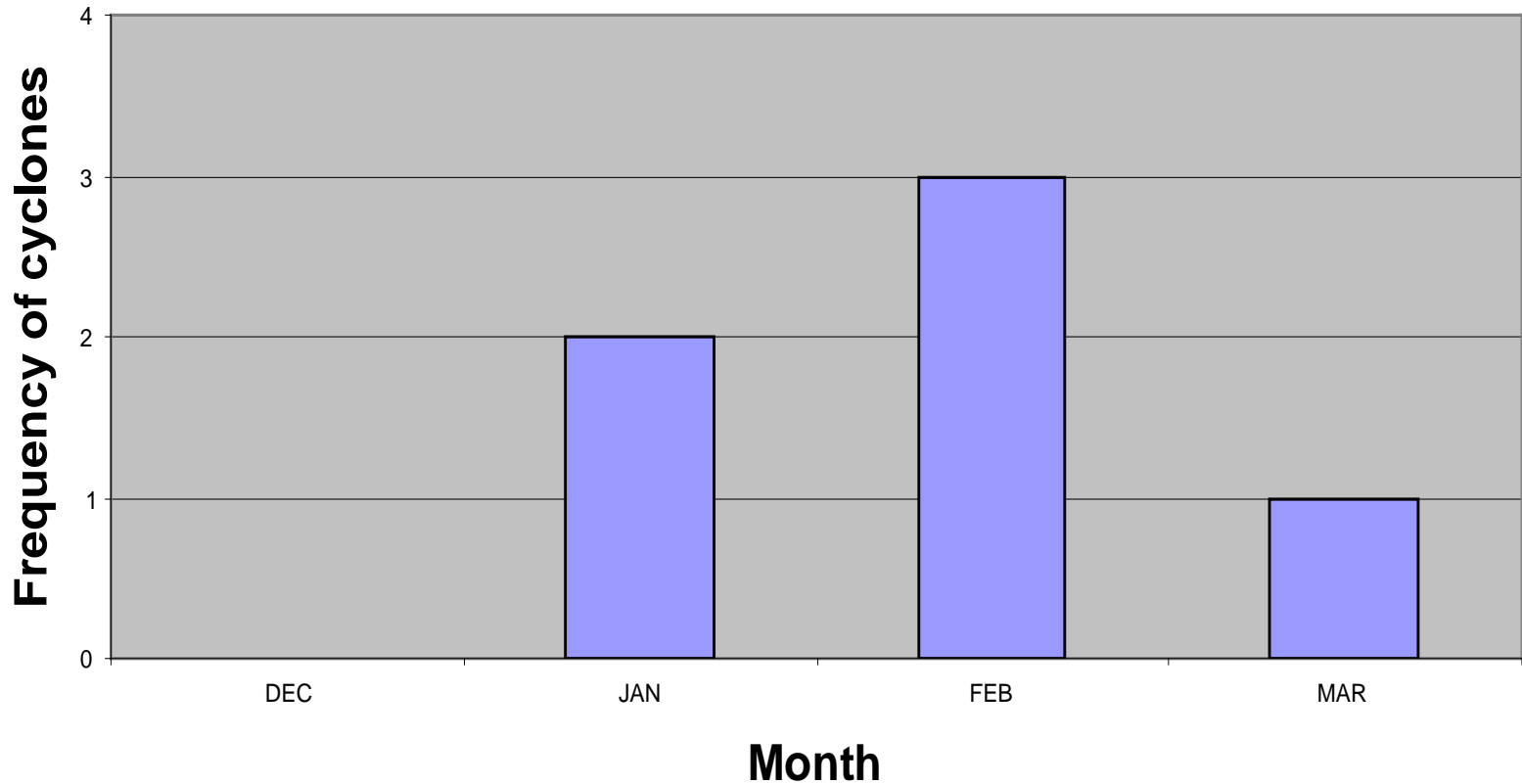
- Accuracy in the forecasts of the path and intensity of tropical cyclones assist local authorities reduce evacuation and preparedness costs.
- Communities are warned in advance and will be better prepared
- Prepositioning of human and material resources in cyclone prone areas,



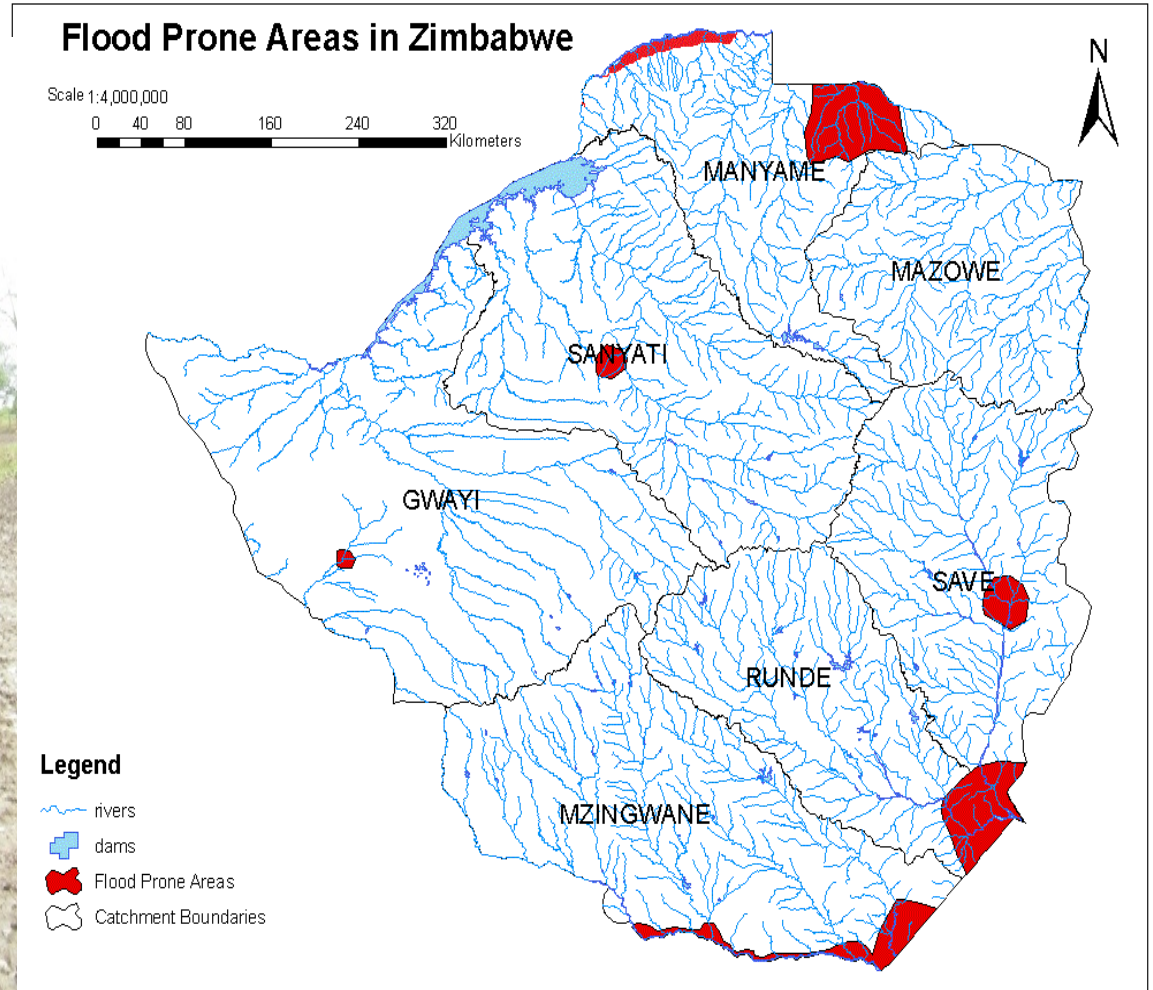
TRACKS OF CYCLONES THAT ENTERED ZIMBABWE



MONTHLY FREQUENCY OF CYCLONES THAT ENTERED ZIMBABWE

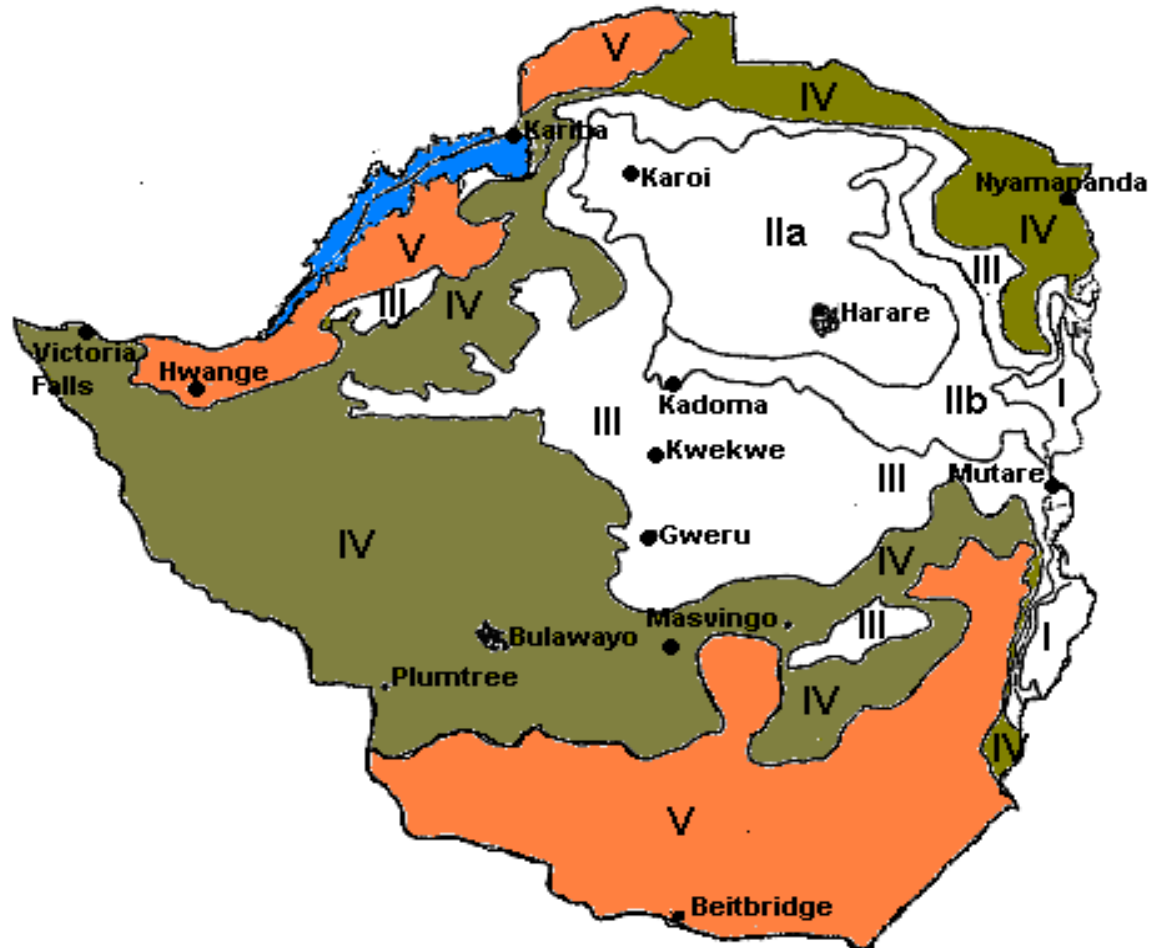


Source: Zimbabwe Met Services Department



Source: ZINWA

Ecological zones



Areas which are usually termed drought prone areas are found in regions IV and V (colored). (Climate Handbook of Zimbabwe)

Warning about pending droughts

Help to inform Agric practices such as;

- Staggering of crops,
- Drought tolerant varieties,
- Conservation farming,
- Planning for livestock supplementary feeding,
- Short season varieties (seed companies)



ZIMBABWE MALARIA OUTBREAK - Geographic Distribution of Reported Cases

As of 30 May 2010



Legend

- International Boundary
- Province Boundary
- District Boundary

District with current Outbreak

Historical Malaria Burden

- 1 Free
- 2 Sporadic
- 3 Low and Short Seasonal
- 4 Moderate and Seasonal
- 5 High and Seasonal

Malaria burden is based on analysis of 1992-2008 data from MoHCW

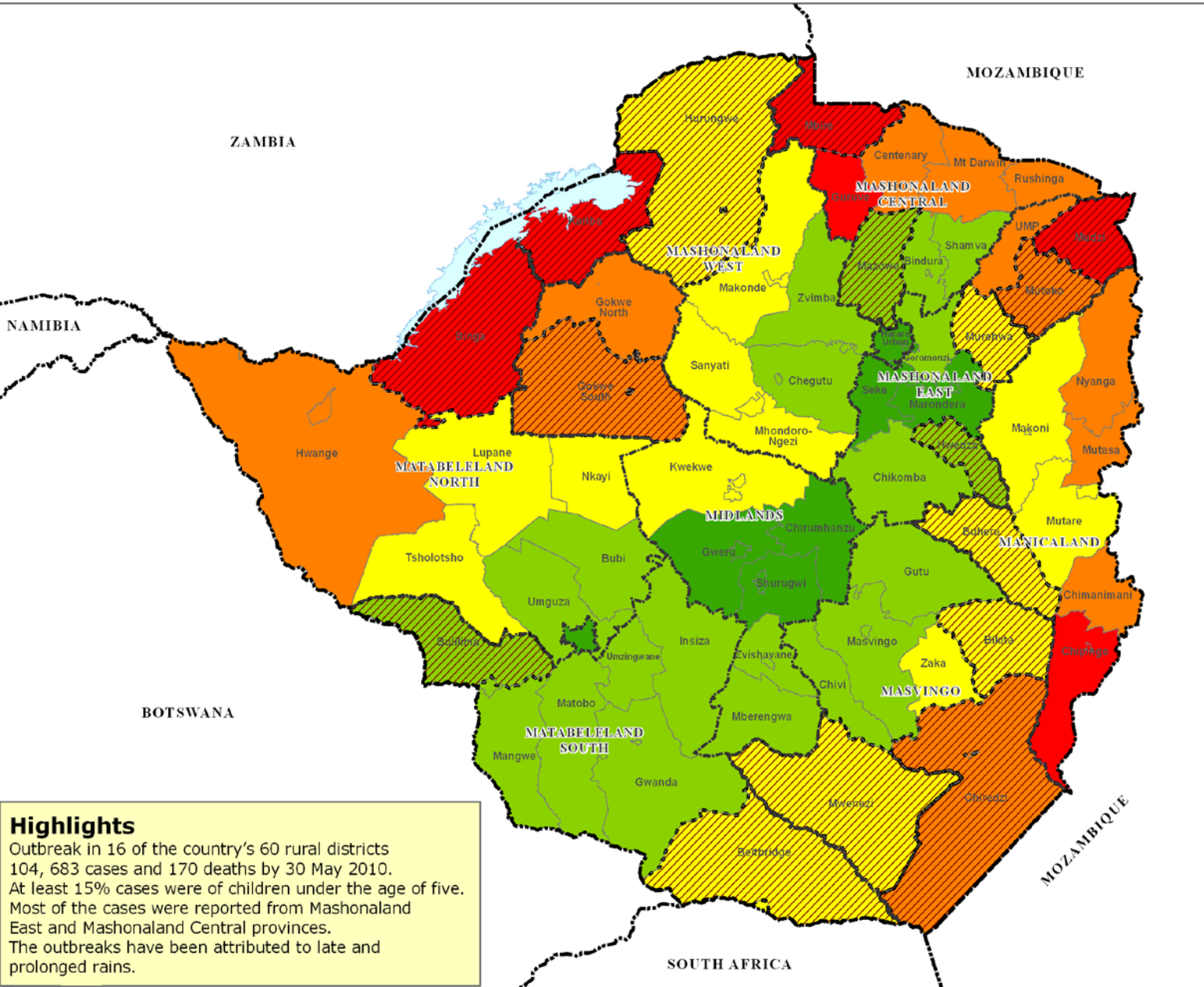
Map Doc Name: OCHA_Sit/Map_Malaria_v1_A4_103005

Creation Date: 30 May 2010
 Projection/Datum: Arc 1950
 Web Resources: <http://ochaonline.un.org/zimbabwe>
 Nominal Scale at A4 paper size: 1:4,628,332



Map data source(s): Data from Ministry of Health and Child Welfare and WHO.

Disclaimer: The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.



Highlights
 Outbreak in 16 of the country's 60 rural districts
 104, 683 cases and 170 deaths by 30 May 2010.
 At least 15% cases were of children under the age of five.
 Most of the cases were reported from Mashonaland East and Mashonaland Central provinces.
 The outbreaks have been attributed to late and prolonged rains.

INFORMATION DISSEMINATION OPTIONS

Communication media	Advantages	Disadvantages
Radio and TV	Wider coverage	Not all communities have access to radio and TV coverage in Zimbabwe Limited use,
News Papers	Messages / information is well elaborated	May not reach intended communities, Takes time to reach communities, Language barriers
Telephones	Messages are quickly delivered Allows for two way communication	Congestion, Common in urban areas only,
Cell phones	Less congestion, A large number of people can be reached simultaneously Small Message Services can be used to alert large numbers of people, Affected communities can be targeted	Non subscribers cannot be reached, Messages are short and may need further interpretation , Language barriers
Internet	Interactive Very effective at national level	Coverage is minimal at sub-national level , Expensive

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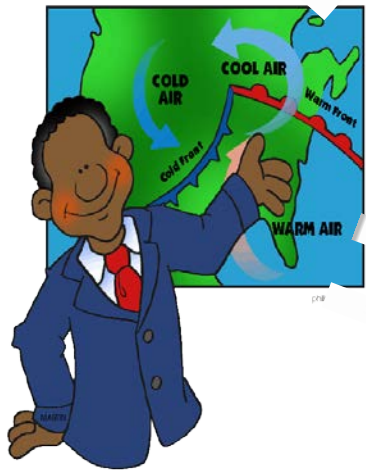
Communication media	Advantages	Disadvantages
Community radios	Good for the marginalised communities	Radios may be owned by a few H/H Communities may lose interest in listening if the radios are meant for disasters only

Areas requiring improvements

- Need to improve national coverage in terms of early warning infrastructure, human capacity development and service delivery, including information dissemination (automatic weather stations)
- There is need to improve coverage for near real time flood monitoring hardware and software and the requisite expertise.
- Mapping of emerging weather related hazards such as hailstorms and flash flood prone areas
- Need for a feed back mechanism after issuance of potential / pending hazard, if it doesn't occur eg Cyclone,
- Determining observable trends in weather patterns to inform DRM planning.
- Training of the media on appropriate and ethical weather reporting (***Looming floods, Disaster Looming***)
- Linking IKS with hydro-meteorological science (Research)
- Flood modelling to determine elements at risk
- Improve satellite based weather observations and remote sensing ,

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- Decentralisation of hydro-meteorological extension services to district level,
- Review of the Agro –ecological zones in Zimbabwe,
- Web/ internet based information dissemination to reach those who can afford the services, (*Adopting the Common Alert Protocol*)
- There need to consider the introduction of community radios for the dissemination of weather related information,
- Expect increased regional / country to country collaboration in monitoring transboundary weather related hazards



**Meteorological
Services Department**



Server



SMS updates and alerts

Community radios



**Subscribed
Communities at Risk**

Challenges

- Delayed DRM policy and legislation review. For early warning systems to be effective, it is essential that they be integrated into policies for disaster mitigation
- Information management technologies have fallen behind due to resource constraints (financial, equipment, skilled personnel)
- Dynamic nature of hydro-meteorological hazards and vulnerabilities
- Lack of comprehensive data on hazards and vulnerability and mapping ,
- Communication problems (media, meteorological jargon , poor coverage of print and electronic media)
- Socio-cultural challenges (religious and cultural beliefs,)
- Conflict between IKS and science

Thank you

