



Report of the Fourth Greater Horn of Africa (GHA) Malaria Outlook Forum for the September to December 2009 rainfall season

24 - 25 August 2009, Nairobi, Kenya

Introduction

The Greater Horn of Africa (GHA) countries will experience generally above normal transmission of malaria during the September to December 2009 rainfall season. The malaria workshop, which was held in tandem with the Twenty-fourth GHA Climate Outlook Forum (COF24) from 24 – 25 August 2009 at the Hotel Intercontinental, Nairobi, Kenya, anticipates malaria outbreaks in the epidemics prone parts of the region during the season. The malaria outlook is issued in regard to malaria health risks in the GHA countries, and as a tool for planning and mitigation and should therefore contribute to reduction of malaria health risks in the Greater Horn of Africa (GHA) countries. The participants were drawn from the health experts and climate scientists as well as users of climate information and products within the region.

The climate forecast, which forms the basis of the malaria outlook, was issued by the IGAD Climate Prediction and Applications Centre (ICPAC) and other partners for the GHA sub region comprising Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania and Uganda.

Among the principal factors considered included the evolving Sea Surface Temperatures (SSTs) observed over the tropical Indian Ocean including the India Ocean dipole, and Atlantic SSTs, the emerging El Niño like conditions in the equatorial Pacific Ocean and atmospheric circulation processes.

Malaria in the Highlands of Eastern Africa

Malaria in the Highlands of East Africa is temperature sensitive. It is also sensitive to effects of topography and drainage. Three Highland ecosystems have specific sensitivities to malaria transmission. These are “V” shaped valleys, “U” shaped valleys, and plateaus. The “V” shaped valleys require at least 300 mm per month for mosquito populations to increase, while the “U” shaped valleys require only 150 mm. In Kenya, the current prevalence of malaria in the “V” shaped valleys of Marani in Kisii area, and Fort Ternan in Kericho is 3.5%, while the “U” shaped valleys of Iguhu and Emutete in Kakamega District are at 26.5% and 25% respectively.

Malaria Outlook and weather

The high temperatures expected in September followed by heavy rainfall forecasted in October and November 2009 will lead to high mosquito populations in November, December and may result in malaria outbreaks in January 2010. The forecasted weather conditions are expected to yield **100-200%** increase in malaria in the Highlands in eastern Africa.

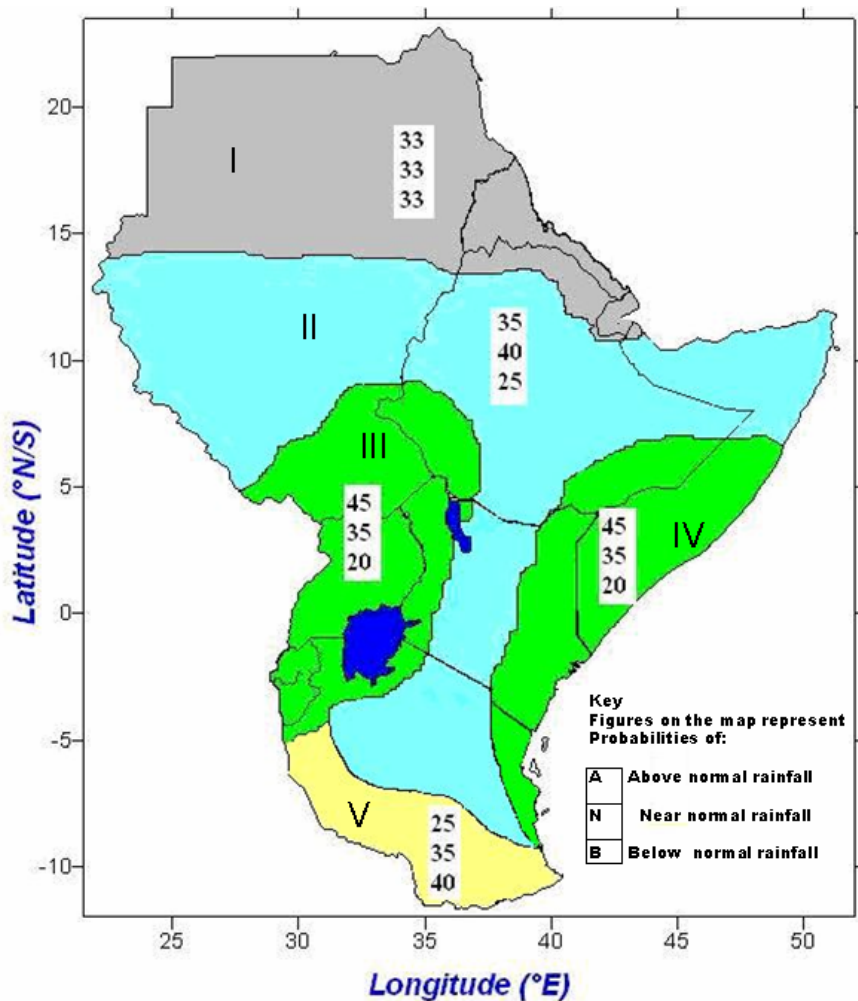


Figure 1. Greater Horn of Africa Consensus rainfall Outlook for the September to October 2009 season

Malaria Forecast

Zone I: It is anticipated that this zone will experience Normal to below normal malaria transmission over south-western and southern parts of the United Republic of Tanzania.

Zone II: This zone, covering most of Uganda, north-western parts of Tanzania, most of Burundi, most of Rwanda, western Kenya, southern Sudan and south-western Ethiopia is expected to experience normal to above normal transmission of malaria. There is a likelihood of localized (pockets) epidemics if high temperatures are sustained in the preceding month. Stakeholders in the region are therefore advised to take precaution.

Zone III: There is an increased likelihood of normal to above normal transmission of malaria over northeastern and coastal parts of Tanzania, eastern northeastern and coastal parts of Kenya, most of Somalia and southeastern Ethiopia.

Zone IV: This zone, covering central Tanzania, highlands west and east of the Rift Valley of Kenya, southern, central and northern Ethiopia; and northeastern part of Somalia is expected to experience normal to above normal transmission of malaria.

Zone V: This zone is based on climatology hence no inference could be drawn on the malaria outlook during the season. These include - Northern Sudan, much of Eritrea, Djibouti, and northeastern Ethiopia. The countries are advised to institute strong surveillance and put in place plans for prevention of malaria and epidemic response.

Summary statement

Normal transmission of malaria is expected in most areas. However, increased likelihood of malaria epidemics occurring in areas with increased likelihood of above normal rainfall is expected. This malaria outlook is based on the climate outlook for September to December 2009 rainfall being the principle Variable.

Recommendation

Countries are advised to increase malaria surveillance and monitor malaria trends against the 10 days and monthly forecasts issued by their respective National Meteorological and Hydrological Services (NMHSs) and take appropriate actions. Emphasis should be given to making treatments available and instituting preventive measures in at-risk populations in good time.

ANNEX I

Mitigation Strategies

The forecast indicates the likelihood of outbreaks of malaria and Rift Valley Fever, cholera and other diarrheal diseases. There is therefore need to:

- Scale up malaria control interventions in the epidemic prone areas at country level in the region with strong malaria epidemic surveillance
- Review District level preparedness and response plans and resource them to respond to any outbreaks in good time
- Intensify the surveillance of other climate-sensitive diseases such as cholera and other diarrheal diseases, Rift Valley Fever (RVF), and meningitis
- Intensify the dissemination of information to all actors and vulnerable communities early enough
- Ensure that risk messages are communicated effectively. This entails correct choice of channels (e.g. FM radio stations); and ensuring that the messages are understood at every level

ANNEX II – Group Presentation

Malaria Working Group Report on the 5th Malaria Outlook for SOND

GHACOF 24

Intercontinental Hotel
NAIROBI
24-25 August 2009

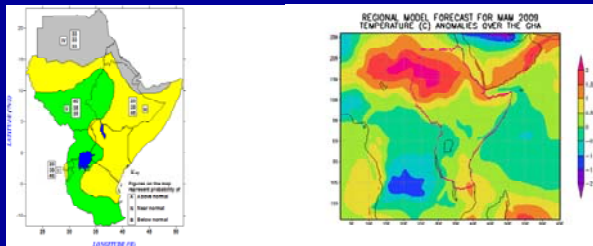
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Participants

1. Mr. James Sang – MoPHS, the DOMC, Kenya
2. Dr. Nyakinda – Moi University, Kenya
3. Dr. Andrew Githeko – KEMRI, Kenya
4. Mr. Jacques Ndikubagenzi – Burundi
5. Prof. Fred Semazzi – North Carolina State University
6. Dr. Bradfield Lyon – IRI, NY
7. Mr. Philip Omondi – ICPAC, Kenya
8. Mr. David Gikungu – KMD, Kenya

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Review OF COF23



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GHACOF23 Statement

- **Zone I:** Normal to below normal malaria transmission over western Burundi and western Rwanda. The possibility of malaria outbreaks is not over-ruled, in the event of a rise in minimum temperatures.
- **Zone II:** Normal to above normal transmission of malaria was expected over southern, western and parts of northern Tanzania, eastern Burundi, eastern Rwanda, much of Uganda, western Kenya, southern Sudan and western Ethiopia.
- There was a likelihood of localized (pockets) epidemics if the current high temperatures are sustained. Stakeholders in the region are therefore advised to take precaution.

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GHACOF23 Statement

- **Zone III:** Below normal to normal transmission of malaria was expected over central and northeastern Tanzania, much of Kenya, northeastern Uganda, southern, eastern, central, and parts of northern Ethiopia; much of Somalia; southwestern Eritrea and central Sudan.
- **Zone IV:** No variation of malaria transmission is was expected over northern Sudan, much of Eritrea, Djibouti, northeastern Ethiopia and extreme northwestern Somalia.

GHACOF23 Statement

Summary statement

- Near normal transmission of malaria expected. No malaria epidemics expected. This malaria outlook is based on the climate outlook for March to May 2009 season.

Recommendation

- Countries are advised to monitor malaria trends against the 10 days and monthly forecasts and take appropriate actions.

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Verification of COF 23

Was the outlook accurate from health sector point of view?

Yes

- In most parts of the region no much detail from other countries in the region (No information)

Kenya

- The rains in western Kenya were heavy, resulting in enhanced transmission of malaria cases, beyond the epidemic pockets that had been foreseen.

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Verification of COF 23

IMPACT OF MALARIA INTERVENTIONS ON DISEASE TRENDS

- Malaria prevalence in Kisii was reported as 4% in May, rising to 6% in June. It was at 5% in Kericho in the same period.
- Malaria epidemics were reported in Mt. Elgon and Kericho and Kipkelion areas in June and July
- There were upsurges in central Kenya parts of Embu, Mbeere, Kirinyaga and Nyeri
- Upsurges of malaria were also experienced in the southeastern lowlands of Kitui, Machakos and Makueni

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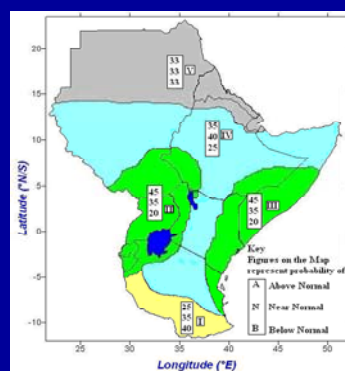
Verification of COF 23

Interventions

- Focalized IRS in the outbreak areas were done in time (Highland epidemic prone areas)
- Districts health facilities were equipped with drugs to cope with the epidemics (Kenya)
- IRS, however, was not done this year due to resource constraints (Kenya)

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COF 24 Climate Forecast



1. Moderate – Mild El-Nino event
2. Analog years (1982, 2002 & 1986)
3. Timely onset
4. Rains to intensify in November extend into early 2010
5. Need to monitor closely the developing situation
6. Temperatures expected to be high on average

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Malaria in the Highlands of Eastern Africa

- Malaria in the Highlands of East Africa is temperature sensitive
- Malaria is also sensitive to effects of topography and drainage
- Three Highland ecosystems have specific sensitivities to malaria transmission
- These are

Malaria Ecosystem types

- “V” shaped valleys
- “U” shaped valleys
- Plateaus

Malaria in the different ecosystems

- Current prevalence in the “V” shaped valleys = **3.5%** (Malaria prediction project)
- Current prevalence in the plateau ecosystem = **4%**
- Current prevalence in the “U” shaped valleys = **25%**

Rainfall and malaria epidemics

- “V” shaped valleys require at least **300 mm** per month for mosquito populations to increase
- “U” shaped valleys requires only **150 mm** for mosquitoes to increase

Malaria Outlook and weather

- High temperatures in September followed by heavy rainfall expected in October November 2009 will lead to high mosquito populations in November, December.
- In January we expect malaria outbreaks
- Current forecasted conditions is expected to yield **100-200%** increase in malaria in the Highlands in eastern Africa

COF24 Malaria Forecast

- **Zone I:** Normal to below normal malaria transmission over south-western and southern parts of the United Republic of Tanzania.
- **Zone II:** Normal to above normal transmission of malaria expected over most of Uganda, north-western parts of Tanzania, most of Burundi, most of Rwanda, western Kenya, southern Sudan and south-western Ethiopia.
- **There is a likelihood of localized (pockets) epidemics if high temperatures are sustained in the proceeding months. Stakeholders in the region are therefore advised to take precaution.**

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COF24 Malaria Forecast

- **Zone III:** Increased likelihood of normal to above normal transmission of malaria expected over northeastern and coastal parts of Tanzania, eastern northeastern and coastal parts of Kenya, most of Somalia and southeastern Ethiopia.
- **Zone IV:** Normal to above normal transmission of malaria expected over central Tanzania, highlands west and east of the Rift Valley of Kenya, southern, central and northern Ethiopia; and northeastern part of Somalia.
- **Zone V:** This zone is based on climatology hence no inference could be drawn on the malaria outlook during the season. These include - Northern Sudan, much of Eritrea, Djibouti, and northeastern Ethiopia. The countries are advised to institute strong surveillance and put in place plans for prevention of malaria and epidemic response.

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COF24 Summary outlook

Summary statement

- Normal transmission of malaria is expected in most areas. **However,** increased likelihood of Malaria epidemics occurring in areas with increased likelihood of above normal Rainfall s expected.

– This malaria outlook is based on the climate outlook for September to December 2009 rainfall being the principle Variable

Recommendations

- Countries are advised to increase malaria surveillance and monitor malaria trends against the 10 days and monthly forecasts and take appropriate actions.
- **Emphasis should be given to making treatments available and instituting preventive measures in at risk populations in good time**

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Mitigation Strategies for COF24

The forecast indicates the likelihood of outbreaks of malaria and Rift Valley Fever, cholera and other diarrheal diseases.

- There is therefore need to scale up malaria control interventions in the prone areas at country level in the region with strong malaria epidemic surveillance
- District level preparedness and response plans need to be reviewed and resourced to respond to any outbreaks in good time
- There is also need to intensify the surveillance of other climate-sensitive diseases e.g. cholera & other diarrheal diseases, RVF, meningitis

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Mitigation Strategies for COF24

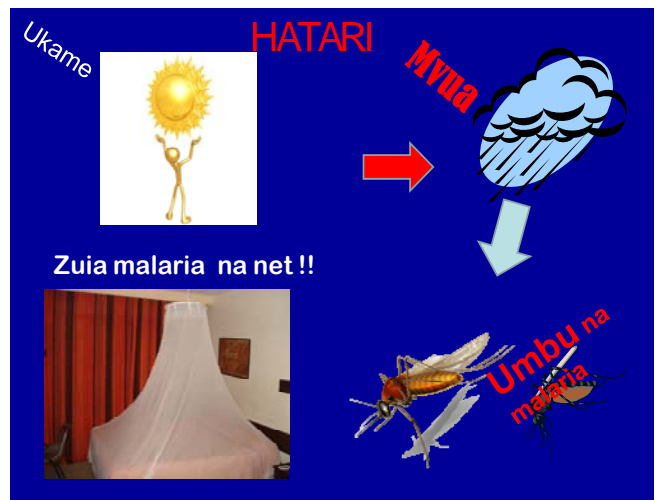
- There is need to intensify the dissemination of information to all actors and vulnerable communities early enough
- There is need to ensure that risk messages are communicated effectively. This entails correct choice of channels (e.g. FM radio stations); and ensuring that the messages are understood at every level

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Critical areas to watch for flooding in Kenya

- Northern Eastern Kenya – **Garissa, Wajir, Manderu and Ijara**
- Northern Kenya - **Low lying areas of Turkana**
- Western Kenya – **Plains of Nyando and Kisumu, Budalang'i**
- The North coast – **All areas extending from Mombasa to Tana River and as far as Hola along the Tana River**

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ANNEX III – Participants

Malaria Group: COF 24 FIFTH MALARIA OUTLOOK FORUM

24-25 SEPTEMBER 2009

INTERCONTINENTAL HOTEL, NAIROBI

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