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For referencing within this bulletin, the Greater Horn of Africa (GHA) is generally subdivided into three sub-regions: The equatorial sector lying approximately between -5^o and 5^o latitude, with the northern and southern sectors occupying the rest of the north and southern parts of the region respectively

1. HIGHLIGHTS/ ACTUALITES

- Rainfall activities were mainly observed over the western and central parts of equatorial sectors as well as western parts of the southern sector of the Greater Horn of Africa (GHA) during the month of April 2015;
- During June to August 2015 rainfall season western and coastal parts of the equatorial sector, and south western parts of the northern sector are likely to receive near normal to above normal rainfall;
- The socio-economic impacts associated with the observed rainfall over the GHA during the month of April 2015 resulted in improved crop, pasture and foliage conditions, increase in water related diseases; improvement in water resources and localised flooding over some parts of equatorial sectors.

2. INTRODUCTION

In this bulletin, the climatic conditions observed over the GHA region in the month of April 2015 is reviewed and the climate outlook for June to August 2015 rainfall season is also provided. Highlights on the socio-economic impacts associated with both the observed conditions and the outlook is also provided.

There are seven sections in this bulletin. In section 1, the major highlights from both the observed and expected climate conditions are outlined. Section 3 provides an overall summary. The climate patterns that prevailed in the month of April 2015 are discussed under section 4, while the dominant weather systems are discussed in the section that follows. The climate outlook over the GHA for the season of June to August 2015 is presented in section 6 followed by the socio-economic impacts associated with the observed climatic conditions in April 2015 and those expected from the climate outlook in the final section.

3. SUMMARY

This bulletin has three main components, these are: the climatic conditions observed during the month of April 2015 over GHA, the climate outlook for June to August 2015rainfall season, and the impacts associated with both the observed climate conditions and the climate outlook.

Rainfall activities were mainly observed over western and central parts of the equatorial sector as well as western parts of the southern sector of the GHA region during the month of April 2015. The observed rainfall conditions over parts of the Greater Horn of Africa during April 2015 resulted in improved crop, pasture and foliage conditions, replenishment of water resources and cases of flooding leading to disruption of livelihood.

The regional consensus climate outlook for the June to August 2015 rainfall season indicates an increased likelihood of near normal to above normal rainfall over southern parts of South

Sudan, parts of western and coastal Kenya, northern and central Uganda; western Ethiopia and southern Somalia. Northern parts of Rwanda; southern and northern parts of Somali, most of Djibouti, Eritrea, southern Uganda, northern parts of South Sudan, southern parts of Sudan, as well as western parts and northern coast of Kenya have increased likelihood for near normal to below normal rainfall, while the rest of the region is likely to experience generally dry conditions during June to August 2015 rainfall season. (Figure 8)

4. CLIMATE PATTERNS IN APRIL 2015

The climatological summary for the rainfall amounts and rainfall severity indices over the GHA in the month of April 2015 are provided in this section. The rainfall severity indices are derived only for those areas in the GHA region where April is not a generally dry month.

4.1 Rainfall amounts and performance during April 2015

During the month of April 2015, most parts of Uganda; western and central parts of Kenya; northern, eastern and western Tanzania; most parts of Rwanda; Burundi; and isolated regions of southern and western Ethiopia received between 100mm to above 200mm of rainfall, with more than 200 mm of rainfall being received over central and western parts of Kenya; western parts of Uganda; and northern parts of Tanzania during the same period. Southern parts of Tanzania; northern and eastern Kenya; most parts of southern Ethiopia; central parts of Somalia; and southern parts of South Sudan received between 50 mm to 100 mm of rainfall, while the rest of the GHA receiving less that 50mm (Figure 1).

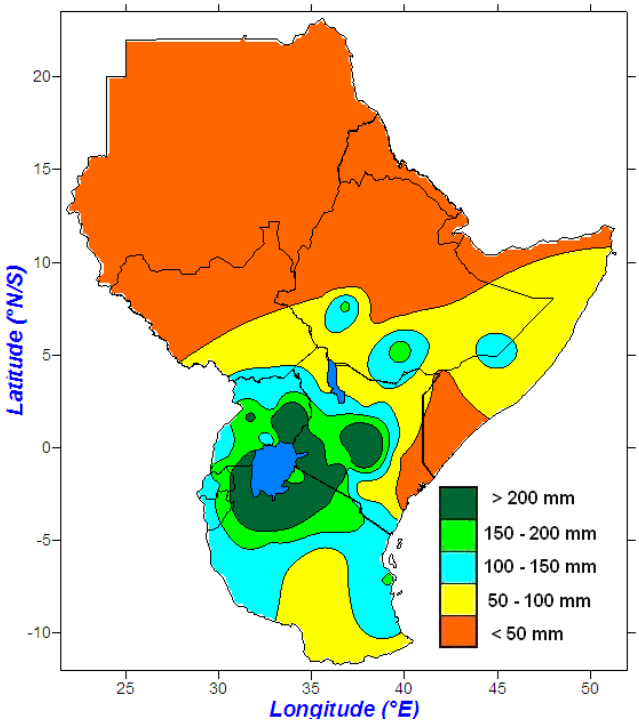

Figure 1: Spatial distribution of rainfall during the month of April 2015

4.2 Climate severity

Rainfall severity indices are derived by considering all observations which are less than 25% (first quartile) of the ranked historical records to be dry while those which are more than 75% (third quartile) are considered wet.

During April 2015, near-normal to wet conditions were observed over most parts of Tanzania; western and central parts of Kenya; western and northern parts of Tanzania; south western Ethiopia; southern South Sudan; parts of Rwanda; and Burundi (Figure 2). Northern parts of South Sudan; northern Ethiopia; most of Sudan; Eritrea; and eastern parts of Tanzania recorded generally dry conditions, while the rest of the GHA indicate near normal to dry conditions.

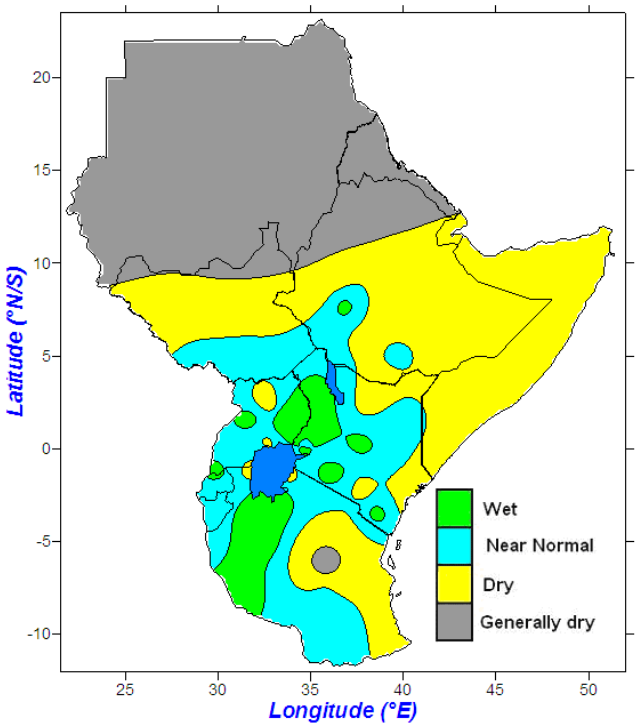

Figure 2: Rainfall severity index for the month of April 2015

4.2.1 Cumulative climate stress severity monitoring

The extent of climate-related impacts on any particular system depends on the severity and duration of the climate stress. Direct and indirect severe impacts on health and food security, water resources and livestock, among other socio-economic sectors emanates from cumulative climate stress severity. The indices used to monitor cumulative rainfall severity over GHA are presented in the next section.

4.2.2 Cumulative rainfall performance from January 2015

The cumulative dekadal rainfall was used to evaluate the rain water stress over GHA region. Figure 3 shows the cumulative dekadal rainfall performance since January 2015. Near normal to above normal rainfall was observed over western and central parts of equatorial sector (Figure 3a, and 3b) while central parts of the southern sector indicate near normal to below normal (Figure 3c).

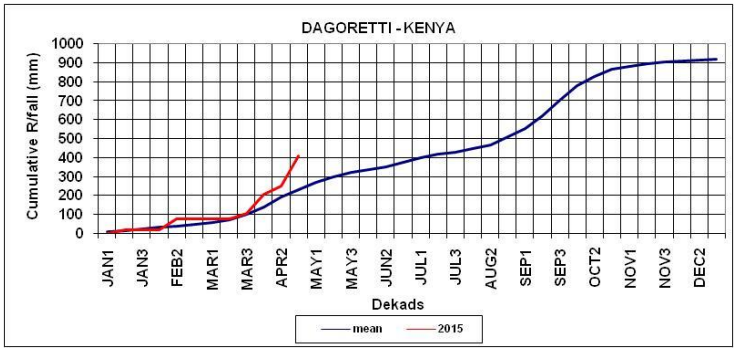

Figure 3a: Cumulative rainfall series for Dagoretti

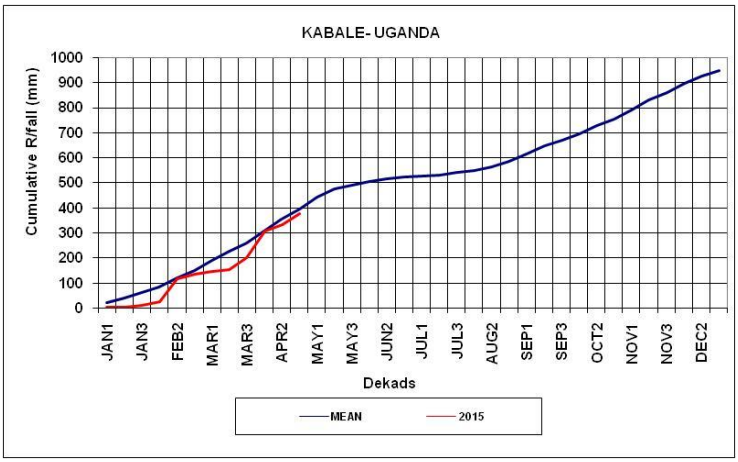

Figure 3b: Cumulative rainfall series Kabale

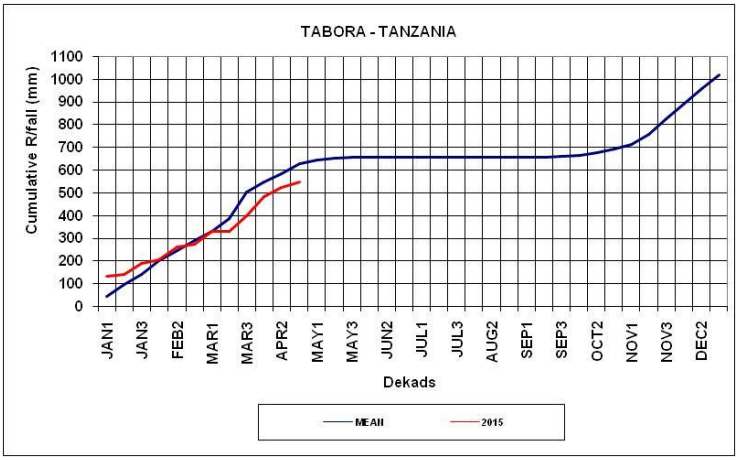

Figure 3c: Cumulative rainfall series for Tabora

4.3 Rainfall anomalies

4.3.1 Rainfall anomalies during February to April 2015 period

During February to April 2015 period, western and south-eastern parts of Tanzania; Rwanda; Burundi; most parts of Uganda; and central, western and southern Kenya received between 75-125% of long term rainfall of the period. Most parts of Sudan; Eritrea; Djibouti; northern Somalia; northern Ethiopia; and northern South Sudan received less than 25%. The rest of the region received between 25-75% of the long-term rainfall (Figure 4) for the three-month long-term mean rainfall during the February-April 2015 period (Figure 4).

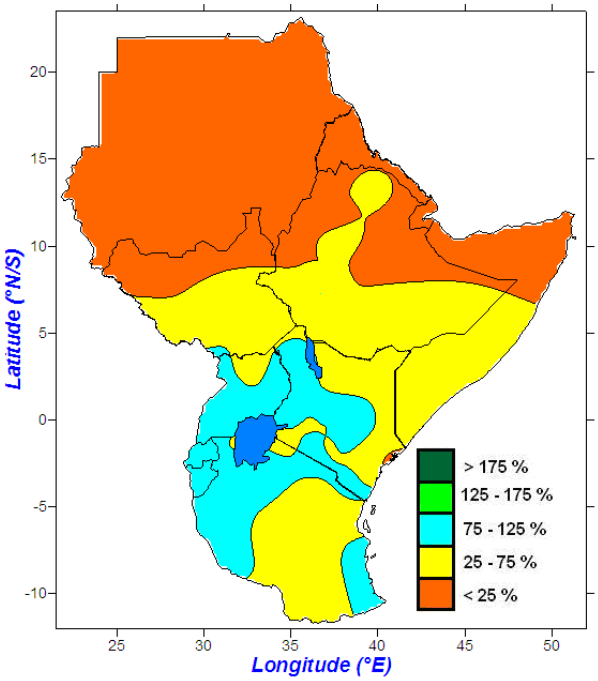

Figure 4: Spatial pattern of rainfall anomalies for February to April 2015 period

4.4 Temperature anomalies

4.4.1 Maximum temperature anomalies

During the month of April 2015, warmer than average maximum temperatures prevailed over most parts of the Greater Horn of Africa (GHA) region (Figure 5a) except for southern parts of South Sudan, eastern parts of Uganda; northern Tanzania, northern parts of Sudan, and central Somalia which recorded less than average maximum temperatures. Negative maximum temperature anomalies exceeding 2°C were recorded over north western Sudan, while positive maximum temperature anomalies exceeding 2°C were recorded over central and northern parts of Ethiopia, most parts of Djibouti, southern Eritrea, northern coast of Kenya and north western South Sudan (Figure 5a).

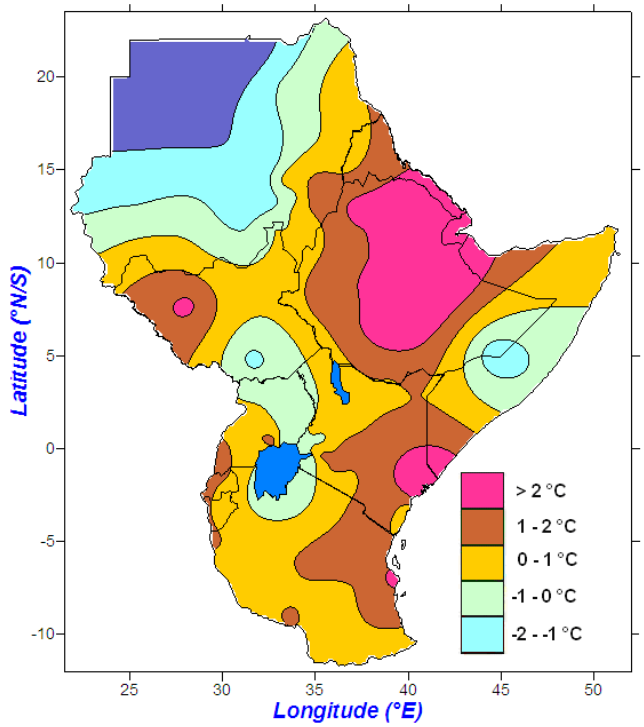

Figure 5a: Maximum temperature anomalies for April 2015

4.4.2 Minimum temperature anomalies

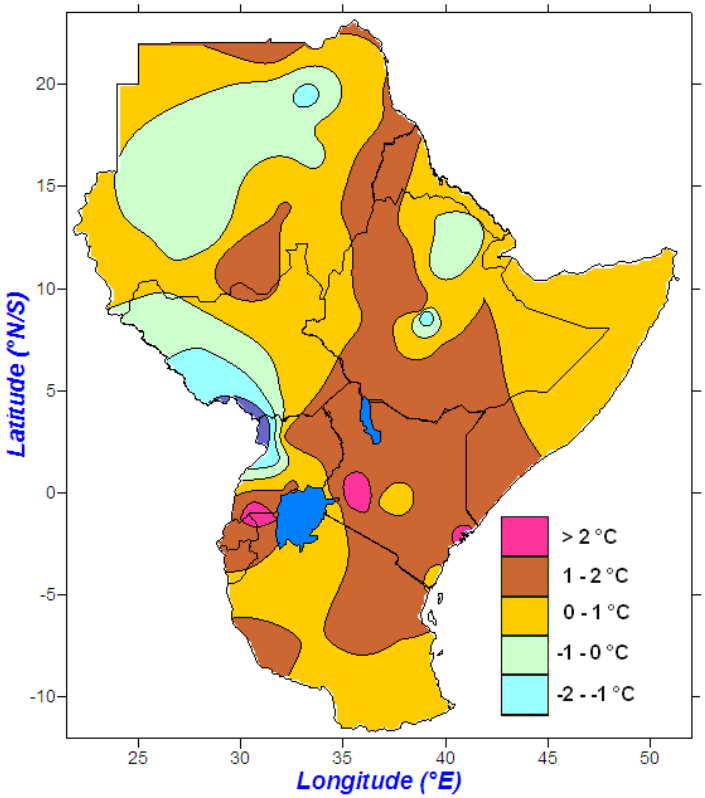

Figure 5b: Minimum temperature anomalies for the month of April 2015

During April 2015, most parts of the GHA received greater than average minimum temperature anomaly except for south western South Sudan, north western Uganda, central and northern Ethiopia and north eastern and central Sudan (Figure 5b). Less than 2°C negative temperature anomaly was observed in south western South Sudan and north western Uganda while positive minimum temperature anomalies exceeding 2°C were observed over south-western Uganda; western and northern coast of Kenya; and north-western Tanzania (Figure 5b).

5. STATUS OF THE CLIMATE SYSTEMS

During the period of 26 April to 23 May 2015 above average sea surface temperatures (SSTs) were observed over much of the Indian Ocean while the eastern parts of equatorial Indian ocean recorded near normal SSTs (Fig.6) resulting in positive Indian Ocean dipole index (Figure.7a). Warmer than average SSTs were also observed over much of the equatorial Pacific Ocean (Figure. 6) an indication of positive ENSO Index (Figure 7b).

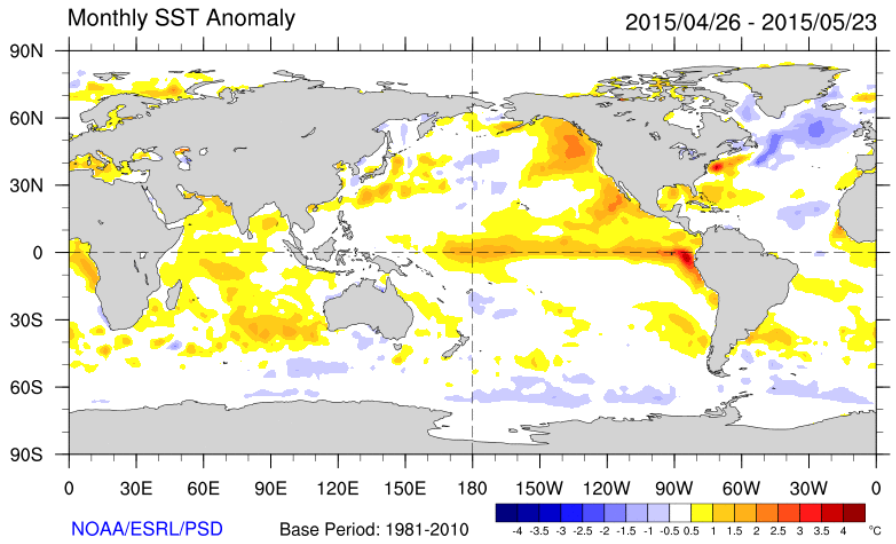

Figure 6: Sea Surface Temperature anomalies for the period 4 April to 23 May 2015 (Courtesy of NOAA)

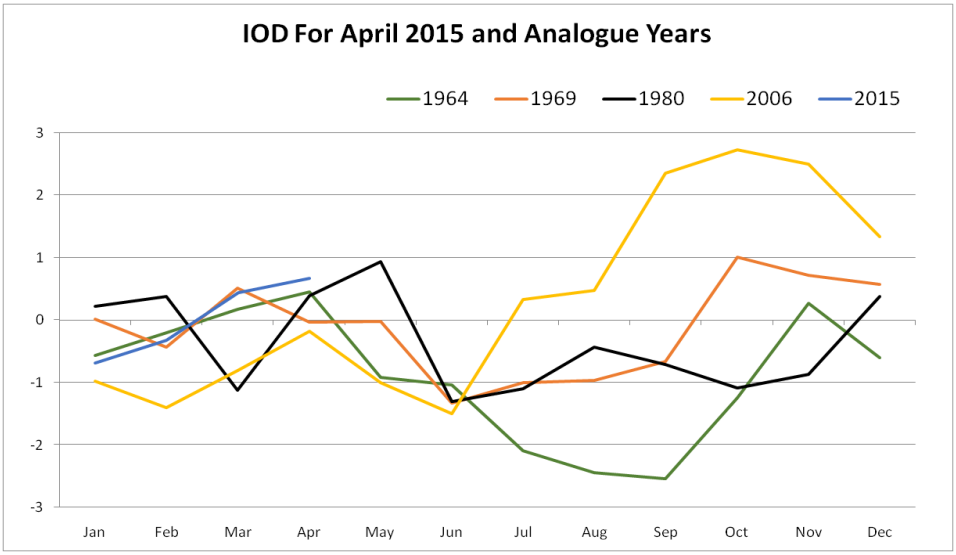

Figure 7a: Indian Ocean Dipole (IOD) for 2015 and Analogue Years

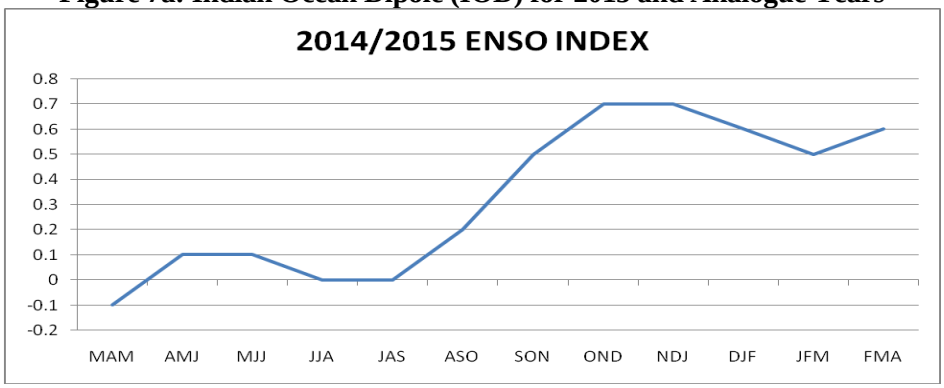

Figure 7b: ENSO index for 2014/2015

6.0 CLIMATE OUTLOOK FOR JUNE TO AUGUST 2015

6.1 The Climate Outlook Forum

The Fortieth Greater Horn of Africa Climate Outlook Forum (GHACOF40) was convened from 25th to 26th May 2015 at Kempinski Palace Hotel, Djibouti, Republic of Djibouti by the IGAD Climate Prediction and Applications Centre (ICPAC) and partners to formulate a consensus regional climate outlook for the June to August 2015 rainfall season over the GHA region. The GHA region comprises Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, Sudan, Tanzania and Uganda.

The forum reviewed the state of the global climate system including the developing weak to moderate El Niño conditions, sea surface temperatures (SSTs) over Atlantic and Indian Oceans, Indian Ocean Dipole (IOD) circulation and considered their impacts on the GHA during June to August 2015 rainfall season. Users from sectors such as disaster risk management, agriculture and food security and water resources as well as non- governmental organisations and development partners actively participated in the formulation of mitigation strategies of the consensus climate forecast in their specific sectors. The media on the other hand formulated strategies for effective dissemination of the consensus climate outlook and its potential impacts.

6.2 Rainfall Outlook for June to August 2015

The rainfall outlook for various zones within the GHA region is given in figure 8 below.

Zones I & V: Increased likelihood for near to below normal rainfall

Zones II & VI: Increased likelihood of near normal to above normal rainfall

Zones III & IV: Usually dry during June to August

Note:

The numbers for each zone indicate the probabilities of rainfall in each of the three categories, above, near, and below-normal. The top number indicates the probability of rainfall occurring in the above-normal category; the middle number is for near-normal and the bottom number for the below-normal category. For example in zone II, covering much of GHA there is 20% probability of rainfall occurring in the above-normal category; 45% probability of rainfall occurring in the near-normal

category; and 35% probability of rainfall occurring in the below-normal category. The boundaries between zones should be considered as transition areas.

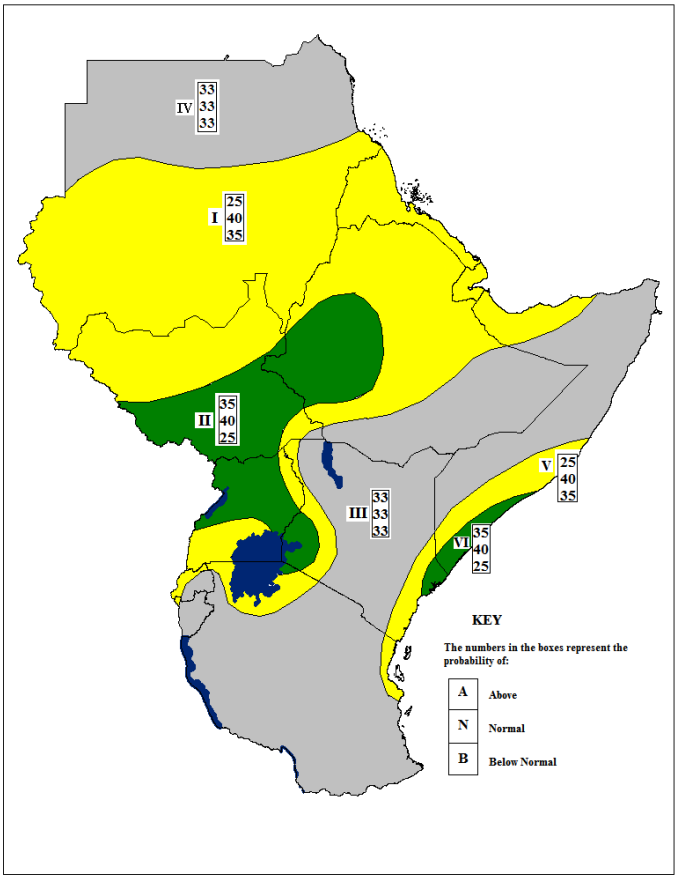

Figure 8: Greater Horn of Africa Consensus Climate Outlook for the June to August 2015 rainfall

7.0 IMPACTS ON SOCIO-ECONOMIC SECTORS

The socio-economic impacts associated with observed rainfall conditions and those from the climate outlook are provided below.

7.1 Impacts of observed climate conditions during April 2015

The socio-economic impacts associated with the observed rainfall over much of the Greater Horn of Africa during the month of April 2015 were as follows:

- Improved crop, pasture and foliage conditions;
- Replenishment of water reservoirs;
- Localised flooding leading to destruction of property, displacement of people, and disruption of livelihood;
- Increase of water related diseases;

In regions that experienced dry conditions the impacts were:

- Poor pasture and water availability leading to reduced livestock productivity;
- The water and food scarcity.
- Increased water related diseases;
- Poor crop performance.
- Delay in commencement of planting season

7.2 Potential impacts for June to August 2015 climate outlook

The areas expected to receive normal to above normal rainfall are likely to have the following impacts:

- Good prospects for crop and livestock performance;
- Improvement in water resources and replenishment of reservoirs;
- Flooding that may lead to disruption of livelihood of people, and destruction of property;
- Outbreaks of water related diseases.

The areas expected to receive near normal to below normal rainfall are likely to have the following impacts:

- Poor prospects for crop and pasture performance;
- Risk of water scarcity;
- Outbreaks of water related diseases;
- If the dry conditions occur within the agricultural areas, this could lead to water stress conditions and may cause significant water and pasture scarcity, crop and livestock losses.