March 2015
No. ICPAC/02/277

IGAD Climate Prediction and Applications Centre Monthly Bulletin, March 2015

1. HIGHLIGHTS/ ACTUALITES

- Rainfall activities were mainly observed over western parts of southern and equatorial sectors of the Greater Horn of Africa (GHA) during the month of February 2015;
- During April to May 2015 rainfall season the western parts equatorial sector are likely to receive near to above normal rainfall;
- The socio-economic impacts associated with the observed rainfall over the GHA during the month of February 2015 resulted in improved crop, pasture and foliage conditions as well as improvement in water resources over the southern sector. Localised flooding was also reported over western parts of the equatorial and southern sectors.

2. INTRODUCTION

In this bulletin, the climatic conditions observed over the GHA region in the month of February 2015 is reviewed and the climate outlook for April to May 2015 rainfall season is provided. The socio-economic impacts associated with both the observed conditions and the outlook is finally highlighted.

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 February 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 April to May 2015 rainfall season is presented in section 6. The socio-economic impacts associated with the observed climatic conditions and those expected from the climate outlook are outlined in the final section.

3. SUMMARY

The three main components of this bulletin are summarised in this section. These components are: the climatic conditions observed during the month of February 2015 over GHA, the climate outlook for April to May 2015, and the impacts associated with both the observed climate conditions and the climate outlook.

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

The regional climate outlook for April-May 2015 rainfall season indicates increased likelihood of near normal to above normal rainfall over western parts of equatorial of The Greater Horn of Africa (GHA).(Figure 8).

4. CLIMATE PATTERNS IN FEBRUARY 2015

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

4.1 Rainfall amounts and performance during February 2015

During the month of February 2015, western Tanzania, western Burundi and western Rwanda received between 100 mm to 150 mm of rainfall; eastern half of Rwanda; eastern parts of Burundi; northern, central and southern parts of Tanzania; and parts of south-western Kenya received between 50mm and 100mm of rainfall while most of the of the GHA received less than 50mm of rainfall (Figure 1).

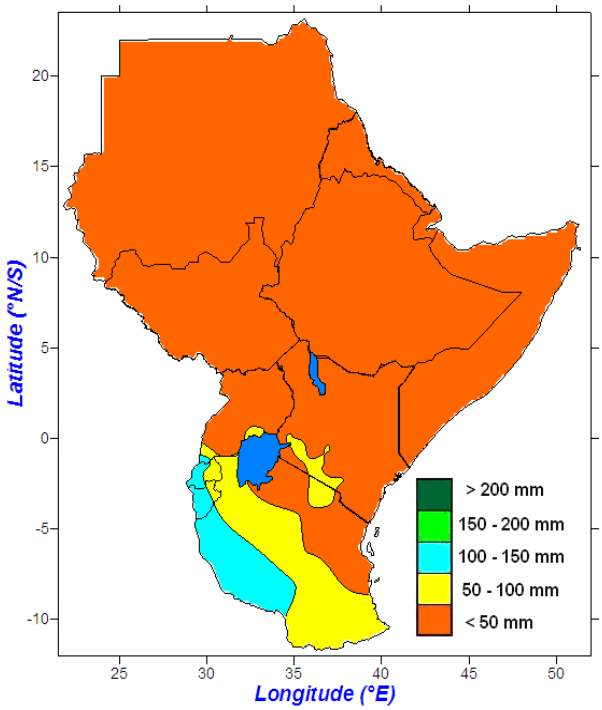

Figure 1: Spatial distribution of rainfall during the month of February 2015

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 February 2015, near-normal to wet conditions were recorded over Rwanda; south eastern Uganda; western parts of Burundi; parts of western Kenya; western, and parts of central Tanzania; (Figure 2). Dry conditions were recorded over southern and western parts of Uganda; parts of western Kenya; northern, central and southern Tanzania; and isolated part of central Ethiopia (Figure 2). The rest of the GHA recorded generally dry conditions.

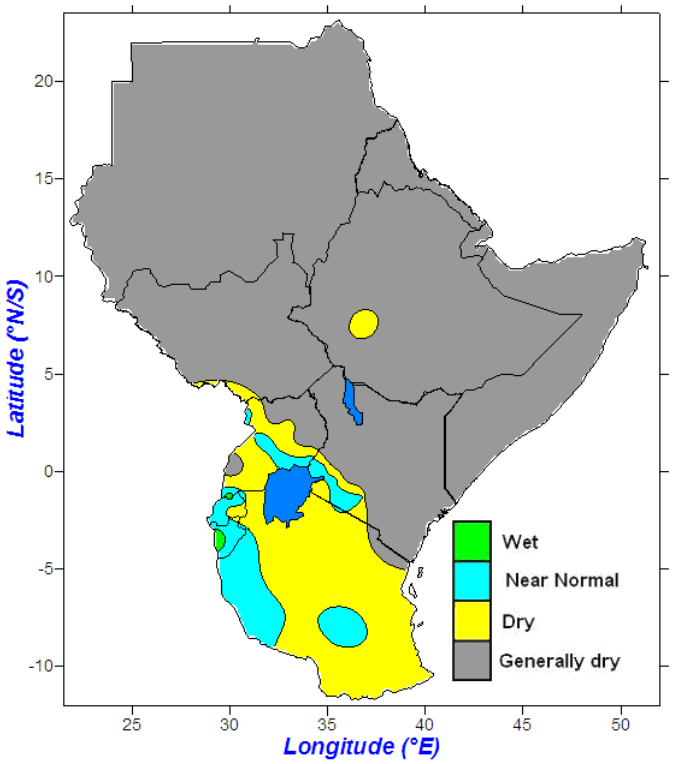

Figure 2: Rainfall severity index for the month of February 2015

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 June 2014 to February 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 June 2014. Near normal to below normal rainfall was observed over parts of equatorial sector (Figure 3a, 3b and 3c).

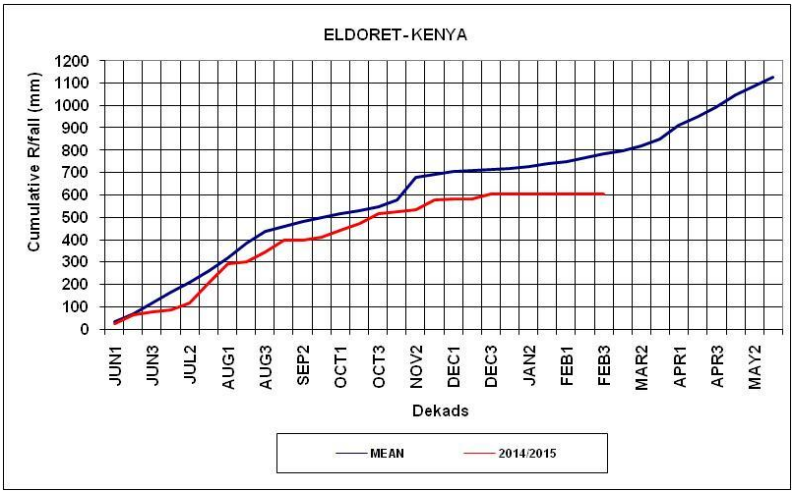

Figure 3a: Cumulative rainfall series for ELDORET

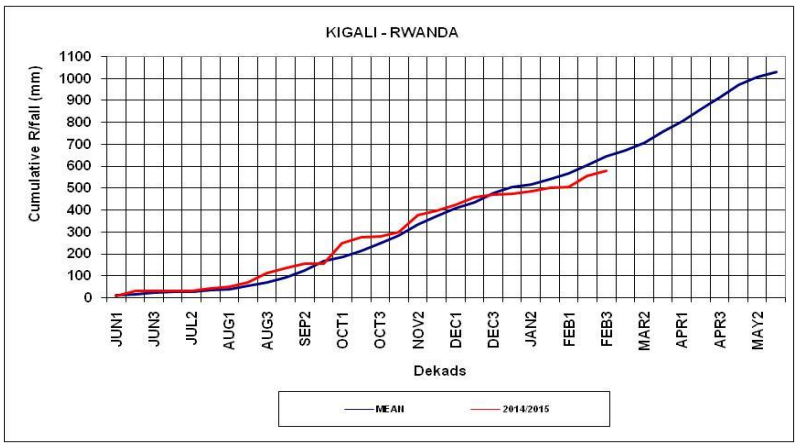

Figure 3b: Cumulative rainfall series for KIGALI

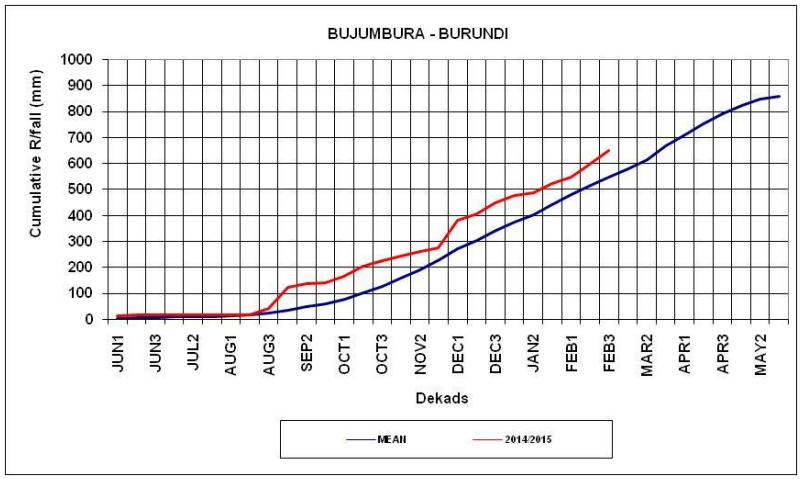

Figure 3c: Cumulative rainfall series for BUJUMBURA

4.3 Rainfall anomalies

4.3.1 Rainfall anomalies during December 2014 to February 2015 period

During December 2014 to February 2015 period, most parts of Tanzania; south-western and southern eastern parts of Kenya; Rwanda and western part of Burundi received between 75-125% of long term rainfall. Southern and northern parts of Somalia; southern parts of Eritrea; Djibouti; southern parts of South Sudan; most parts of eastern and Southern Uganda; parts of Southern and Central Kenya; south-western and north-eastern Ethiopia; as well as parts of northern, and isolated parts of western, central, coastal and south-western Tanzania received between 25-75% of the long-term rainfall for the period (Figure 4) for the three-month long-term mean rainfall during the December 2014-February 2015 period (Figure 4).

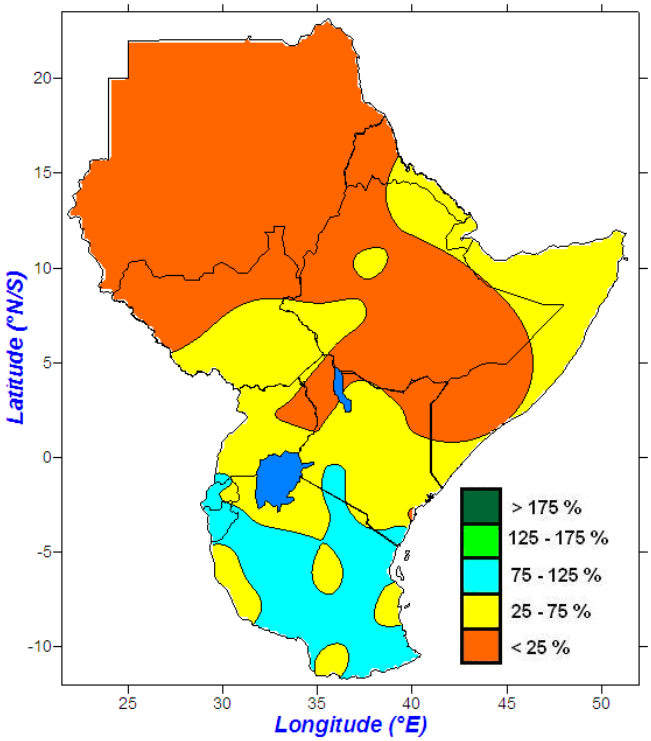

Figure 4: Spatial pattern of rainfall anomalies for December 2014 to February 2015 period

4.4 Temperature anomalies

4.4.1 Maximum temperature anomalies

Warmer than average maximum temperatures prevailed over most parts of northern sector of the GHA region during the month of February 2015 (Figure 5a) except for south western parts of South Sudan which recorded less than average maximum temperature. Positive maximum temperature anomalies exceeding 2°C were recorded over western Uganda; western and north-eastern Kenya; most parts of Ethiopia; eastern parts of Burundi; central and eastern parts of Tanzania; most parts of Sudan; and north eastern South Sudan. (Figure 5a).

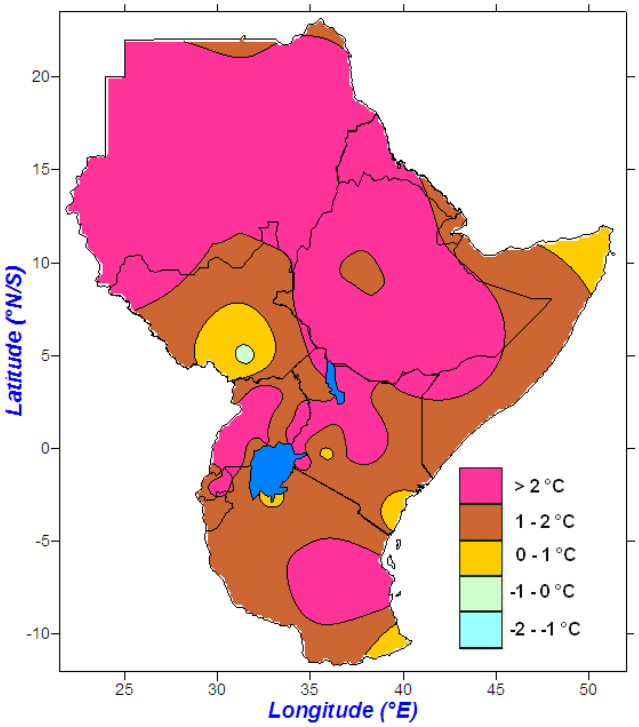

Figure 5a: Maximum temperature anomalies for February 2015

4.4.2 Minimum temperature anomalies

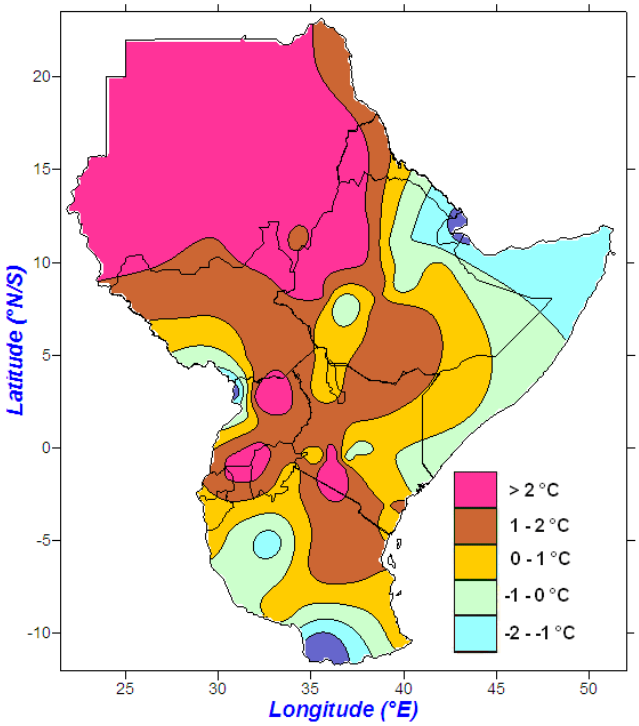

Figure 5b: Minimum temperature anomalies for the month of February 2015

During February 2015, negative anomalies of minimum temperatures were recorded over of Djibouti; southern Eritrea; northern and eastern Somalia; north-western Uganda; south western parts of South Sudan; western and south-western Tanzania, with less than 2°C

negative temperature anomaly being observed in eastern Djibouti, south-western Tanzania and north-western Uganda. Warmer than average minimum temperatures dominated most parts of northern and eastern Tanzania; Uganda; Rwanda; Burundi; most parts of Kenya; western Ethiopia; parts of South Sudan during February 2015 (Figure 5b). Positive minimum temperature anomalies greater than 2°C were recorded most of Sudan and isolate parts of north- eastern and south-western Uganda; western Kenya; and north-eastern Tanzania (Figure 5b).

5. STATUS OF THE CLIMATE SYSTEMS

During the period of February to mid March 2015 above average sea surface temperatures (SSTs) were observed over south-western and eastern parts of the Indian Ocean while cooler than average SSTs were observed over the western parts of the Indian Ocean (Fig.6) resulting in below normal Indian Ocean dipole index (Figure.7). Warmer than average SSTs were observed over western and north-eastern equatorial Pacific Ocean (Figure. 6).

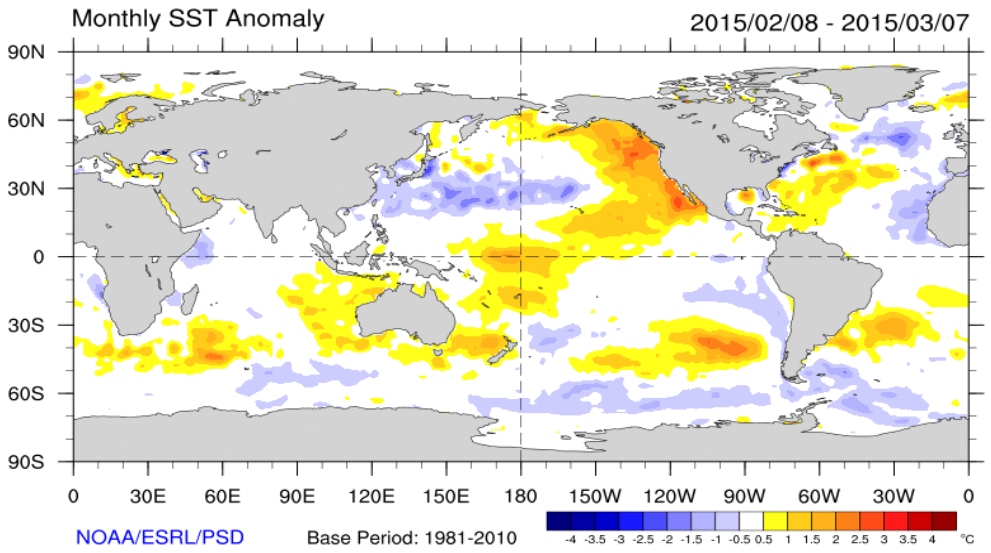

Figure 6: Sea Surface Temperature anomalies for the period 8 February to 7 March 2015 (Courtesy of NOAA)

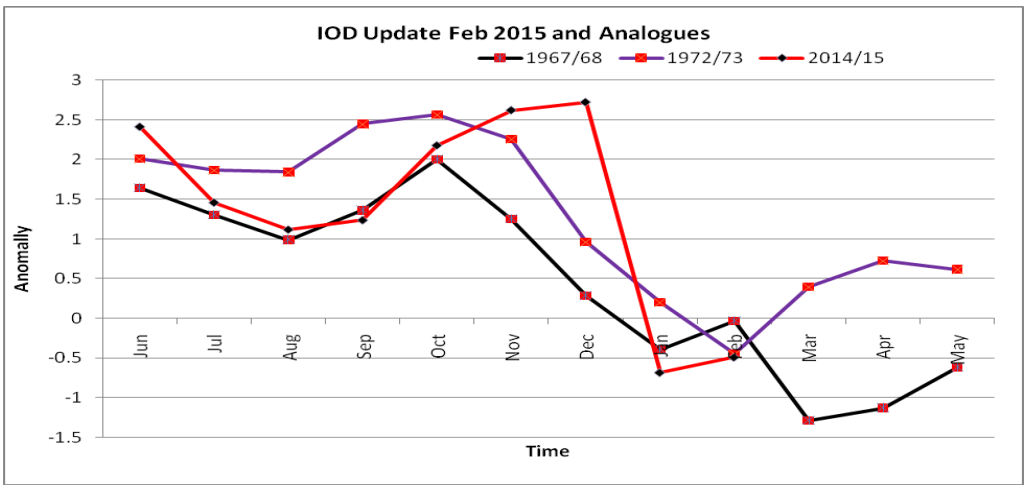

Figure 7: Indian Ocean Dipole (IOD) for 2014 / 2015 and Analogue Years

6.0 CLIMATE OUTLOOK FOR APRIL TO MAY 2015

The outlook for April-May 2015 indicates likelihood of receiving normal to above normal rainfall western and southern Uganda; western and central parts of Kenya; south-western South Sudan; northern parts of Tanzania; parts of Rwanda and Burundi (Figure 8). Most parts of Sudan and northern parts of Eritrea; and northern parts of South Sudan are likely to remain generally dry during the April-May 2015 period (Figure 8). While the rest of the GHA region are expected to receive near normal to below rainfall.

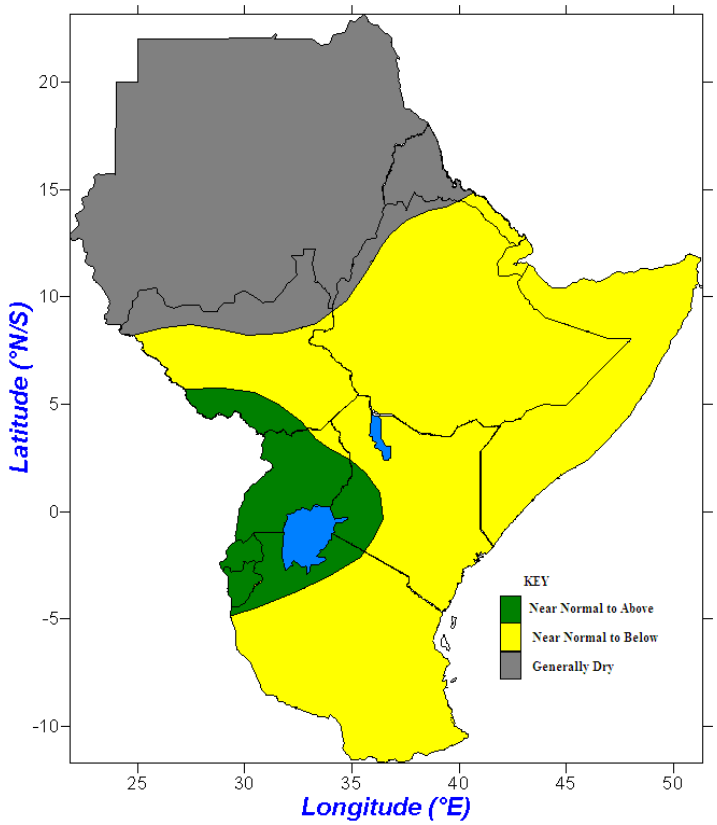

Figure 8: Climate outlook for April-May 2015 rainfall season

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 February 2015

The socio-economic impacts associated with the observed rainfall over much of the Greater Horn of Africa during the month of February 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;
- Increased water related diseases;
- Poor crop performance.

7.2 Potential impacts for April to May 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;
- Increase in food insecurity;
- Reduction in water reservoirs;
- 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.