
DROUGHT OPERATIONS SUPPORT

Quarter 4 Report

2016/17

Prepared By:



**Directorate: Early Warnings and Capability
Management Systems**

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Date: 30 March 2017

Report noted WITH THE FOLLOWING CLARIFICATION FROM
LINE FUNCTIONS:

- ① THE VALUE DERIVED FROM TOOL TOWARDS DECISION MAKING
- ② THE DECISIONS THAT WERE MADE USING THE TOOL
- ③ THE BUSINESS OWNERSHIP OF THE TOOL GOING FORWARD.

Mr Dechlan Pillay

Director: Early Warnings and Capability Management Systems

Date: 31/03/2017



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1. SUMMARY STATEMENT

This report highlights the work conducted from the Directorate: Early Warnings and Capability Management Systems (Dir: EWCMS) for the fourth quarter of 2016 in support of the Drought Operations Centre established in 2015/16.

It is important to note that the report does not reflect a holistic view of the drought and its interventions, only certain aspects where the directorate has been tasked provide assistance is reported on.

In this respect the Directorate has completed the following tasks:

1. Provide situational awareness and spatial data support around the progression of the drought.
2. Highlight drought stricken areas / towns
3. Represent reports received on interventions and drought assistance provided by selected stakeholders

The following tasks were undertaken to provide the NDMC with a Geographic Information Systems (GIS) and Business Intelligence (BI) capability for decision support.

1. Attendance of the National Drought Joint Coordinating Committee (NDJCC)
2. Consulting with, and drafting of a Terms of Reference, with the Agricultural Research Council (ARC) towards drought awareness and decision support products
3. Sourcing data from relevant stakeholders,
4. Data capturing
5. Data manipulation and editing
6. Spatial enablement of data
7. Data migration into the GIS and BI tools
8. Data analysis
9. Database design, implementation and maintenance
10. Reporting and Dashboard development
11. Mapping
12. Report assistance



2. DROUGHT PROGRESSION

The SPI index is used as an indicator to illustrate the severity of drought. The Standard Precipitation Index (SPI – McKee et al., 1993) was developed to monitor the occurrence of drought from rainfall data. The index quantifies precipitation deficits on different time scales and therefore also drought severity. It provides an indication of rainfall conditions per quaternary catchment based on the historic distribution of rainfall” (Umlindi Report - ARC: May 2015) SPI data is sourced on a monthly basis from the Agricultural Research Council (ARC). At the time of the drafting of this document the March SPI (released towards end April) had not yet been released.

The current long term SPI maps show that severe to extreme drought conditions are still prevalent ranging over the eastern parts of the country. However good summer rains has suppressed expansion of the drought and assisted in curbing its effects. The south western parts of the country, however, are not prone to summer rainfall and an increase in the severity of drought conditions can be observed over parts of the Western Cape. The likelihood of above normal rainfall indicated in Figure 5 may provide relief in the coming months.

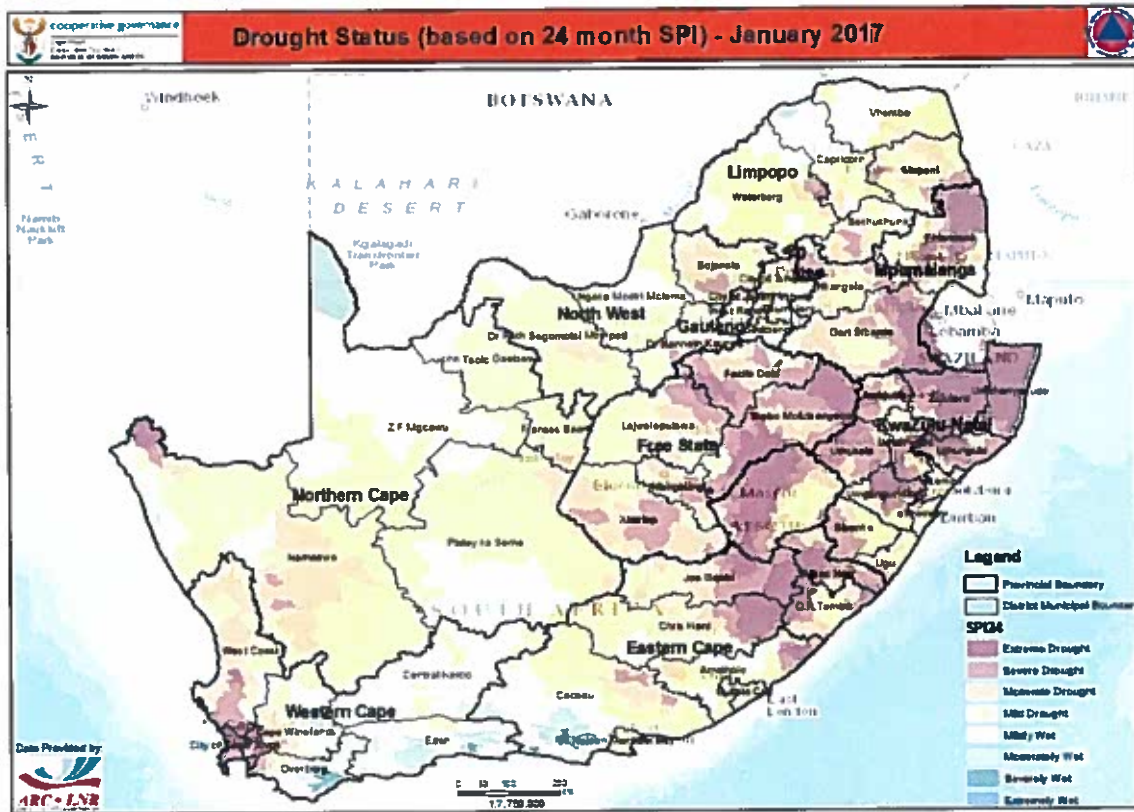


Figure 1: Drought Status January 2017

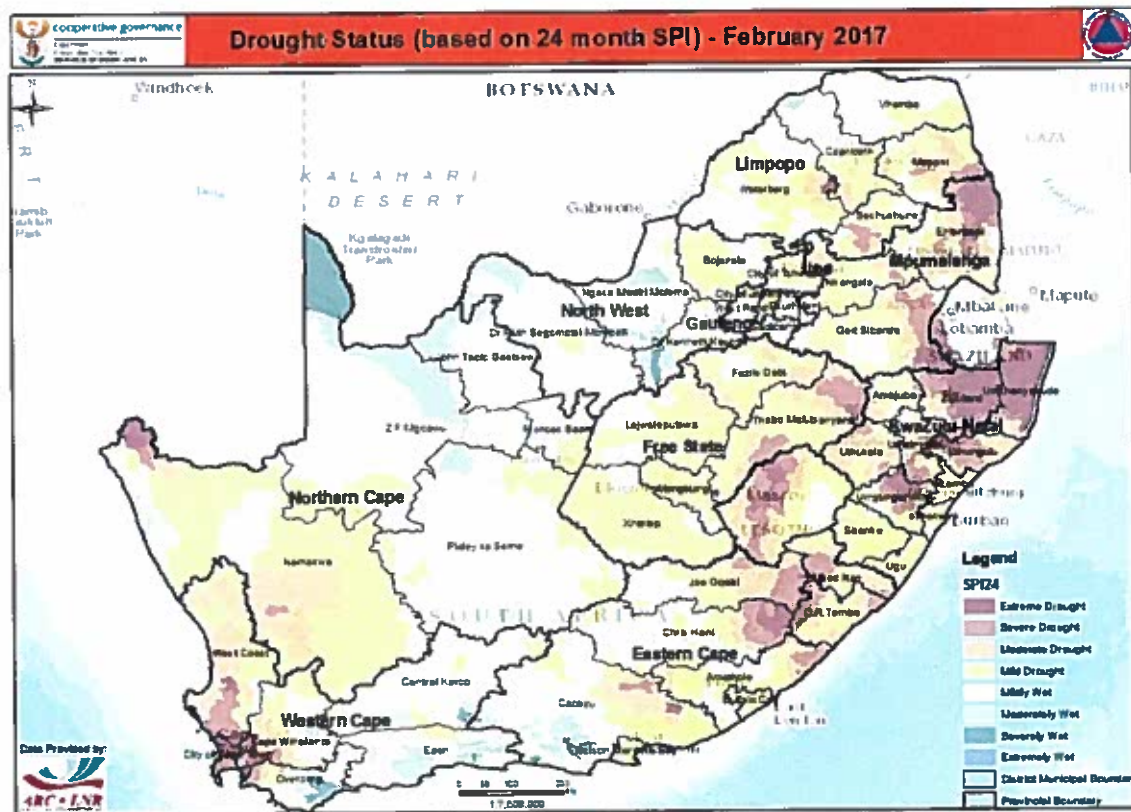


Figure 2: Drought Status February 2017



3. DROUGHT ANALYSIS

Initially drought stakeholder interventions data was sourced from the NDMC's Chief Directorate: Legislation, Policy and Compliance Management (CD: LPCM). This unit was tasked with the sourcing of information pertaining to private sector drought intervention programmes.

With the focus shifting from immediate relief to more sustainable initiatives the scope of reporting has also necessitated the BI component to shift toward monitoring of the drought and augment the GIS component.

The outputs from this are monthly reports (dashboards) that provide information support to the unit for reporting to the NJDCC. The dashboards provide insights into:

1. Demographic details (Population Count, Gender distribution)
2. Highlighting areas and communities in drought affected zones
3. Temporal nature of the drought measured by the SPI
4. Affected quaternary catchment monitoring
5. Spatial distribution map

Figure 3 and 4 are representations of the dashboards provided from January to February 2017.



Drought Monitoring - January 2017

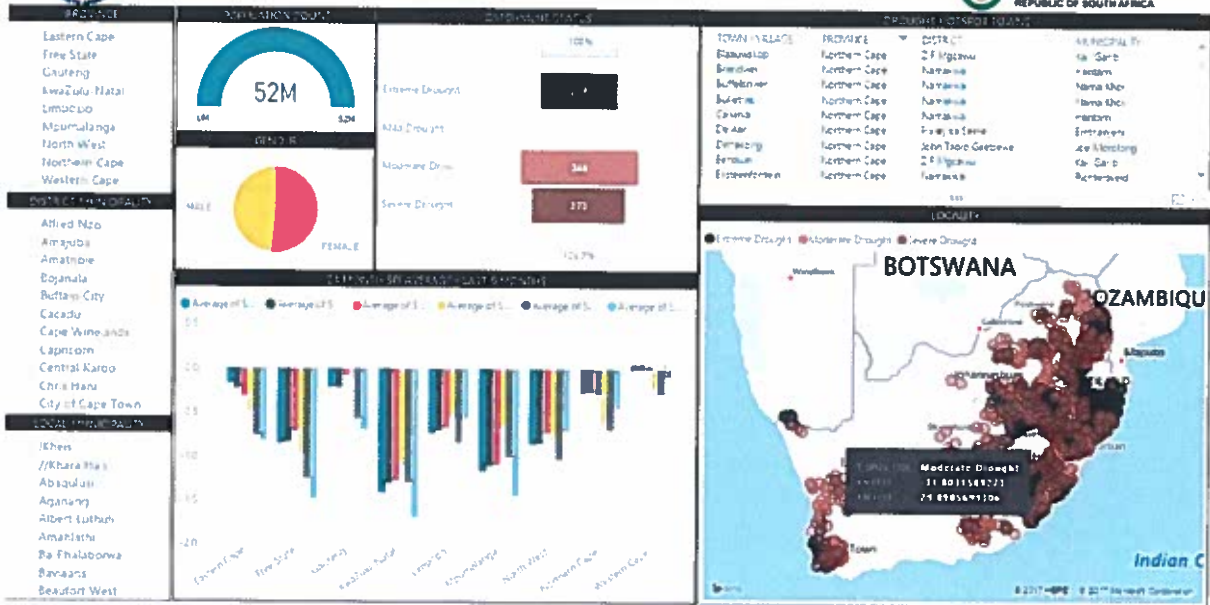


Figure 3: Drought Intervention Dashboard January 2017



Drought Monitoring - February 2017

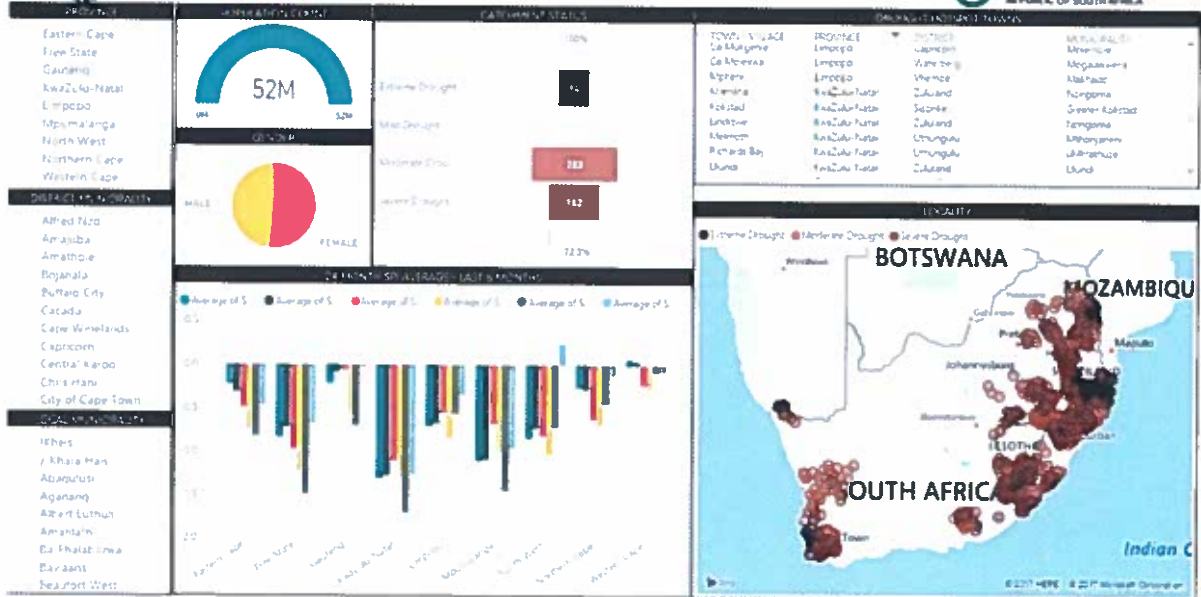


Figure 4: Drought Intervention Dashboard February 2017

There continues to be an evaluation of the information required and provided to the executive which continually adjusts the scope of work for the GIS and the Business Intelligence capabilities.

4. SEASONAL WEATHER FORECASTS

Seasonal forecasts are sourced from the South African Weather Services (SAWS) and add medium term projections in terms of the role that the weather may provide in the context of the drought. These are provided in a native format (txt files) and spatially enabled through modelling and represented in the GIS interface for decision support capability (Figure 5 – 8).

For more information of the seasonal profiles and possible impacts please consult the Seasonal Profile for autumn 2017 available from the NDMC Directorate: Early Warnings and Capacity Management Systems.

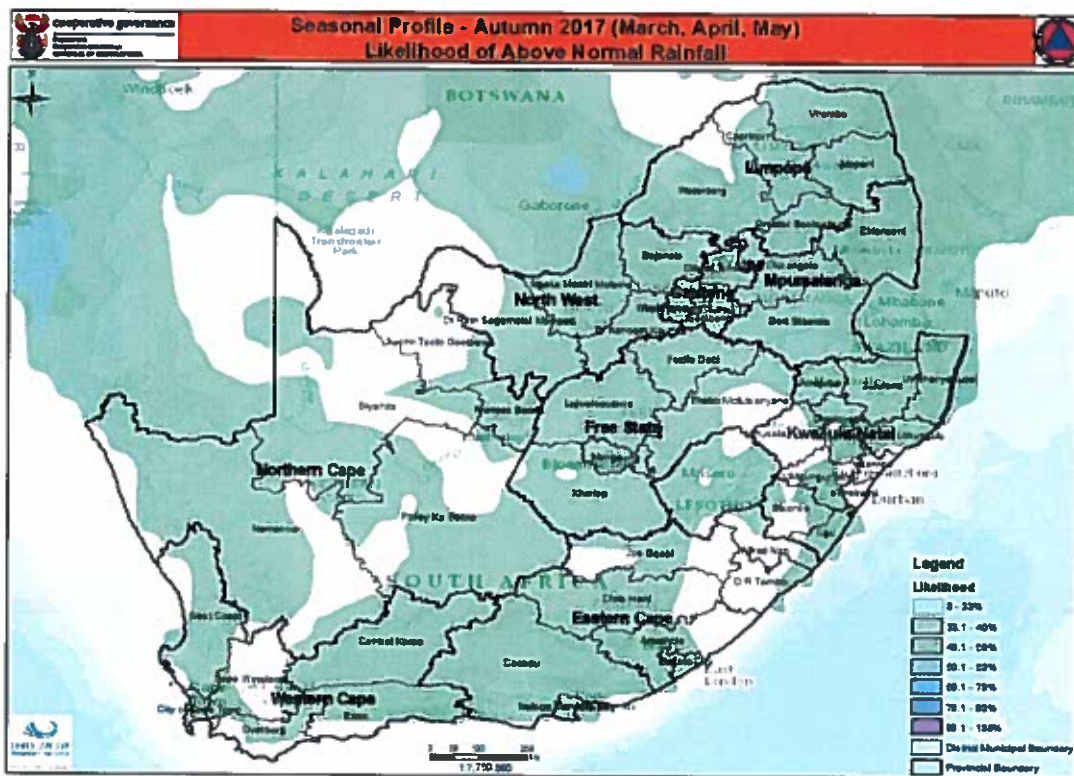


Figure 5: Rainfall: Above Normal Map - Autumn 2017

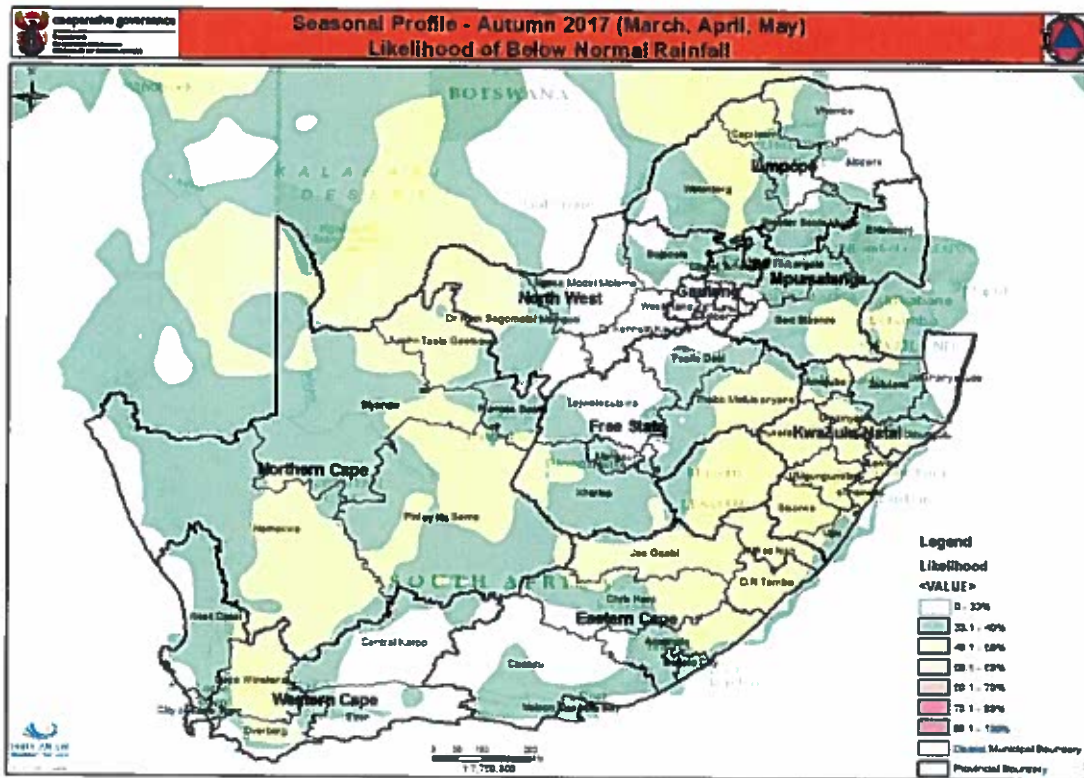


Figure 6: Rainfall: Below Normal Map - Autumn 2017

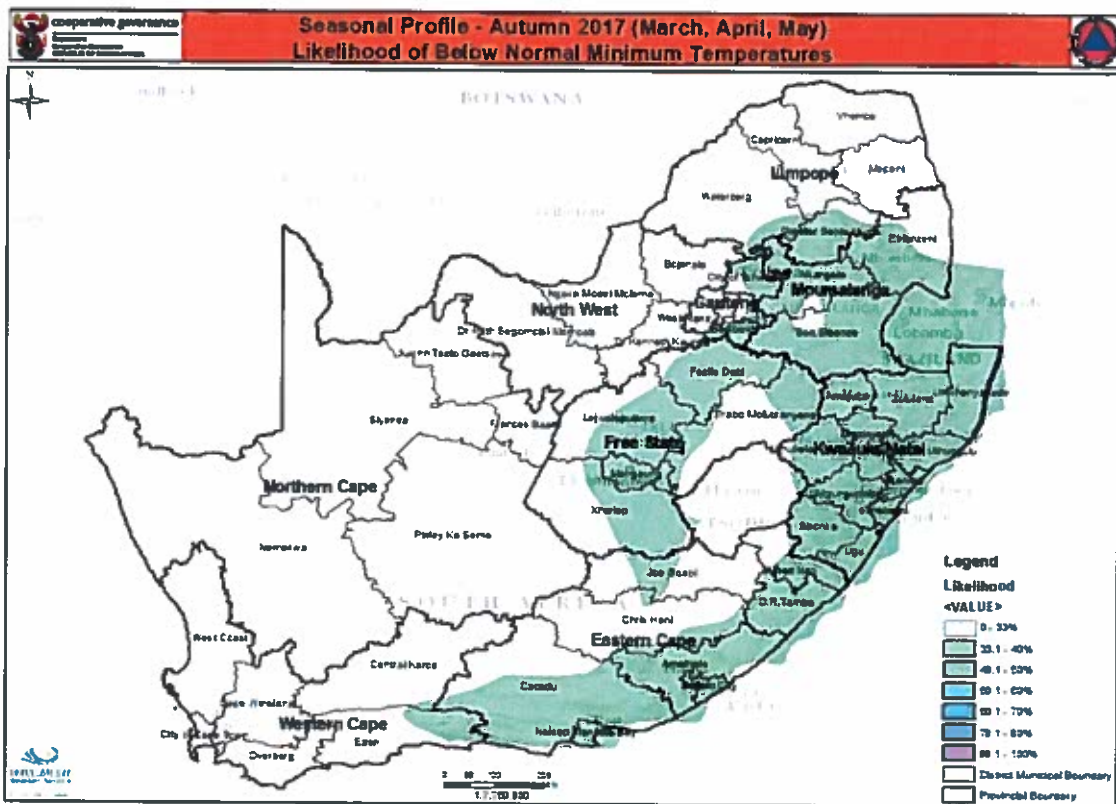


Figure 7: Minimum Temperatures: Below normal Map – Autumn 2017



Agreements or Memorandum of Understanding, to ensure accurate and timely information support.

Finally, it is recommended that procurement of enterprise licensing for the BI component be considered for greater distribution of dashboards to stakeholders external the NDMC.



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