

# Africa RiskView

## MALI END-OF-SEASON REPORT

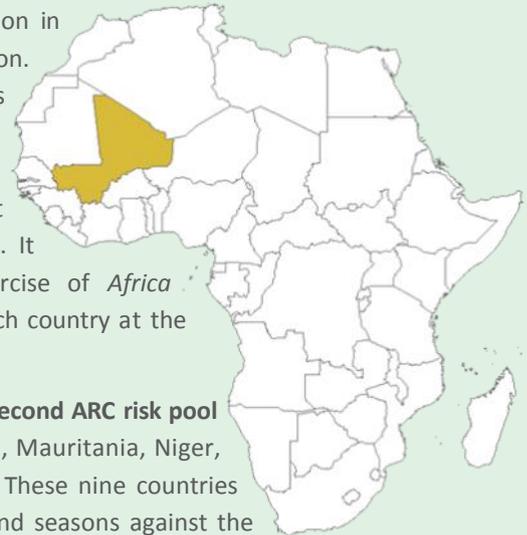
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### OVERVIEW:

This *Africa RiskView Report* analyses the situation in Mali at the end of the 2015 agricultural season.

The report highlights *Africa RiskView's* estimates of rainfall, drought, population affected and discusses the implications for the risk pool of the *African Risk Capacity (ARC)*. Then, it compares the results against external sources. It also provides the basis of a validation exercise of *Africa RiskView's* estimates, which is conducted in each country at the end of an insured season.



Mali is amongst the nine countries to form the **second ARC risk pool in 2015/16**, together with Kenya, Burkina Faso, Mauritania, Niger, Senegal, The Gambia, Malawi, and Zimbabwe. These nine countries insured their respective agricultural or rangeland seasons against the cost of a drought-related response within the context and mandate of ARC. Before participating in the ARC risk pool, Mali customised *Africa RiskView* to show the development of the agricultural season in the country.

### HIGHLIGHTS:

#### RAINFALL:

- The start of the 2015 rainfall season in Mali was delayed; subsequent above-normal rains from July onwards have compensated for early season dryness in most areas

#### DROUGHT:

- *Africa RiskView* shows average to above-average final WRSI values in most parts of the country
- The national early warning system platform (SAP) and other partners report localised production shortfalls due to dry-spells at the beginning of the season in some areas as well as excess rainfall mid-season in other areas

#### AFFECTED POPULATIONS:

- *Africa RiskView* estimates that no one in Mali was affected by drought this season, despite the late onset of the rains
- A validation exercise will be conducted over the coming months together with the in-country Technical Working Group (TWG), to validate *Africa RiskView's* estimates on the ground

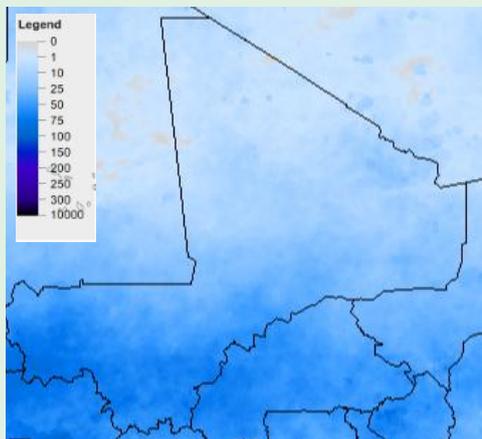
#### INSURANCE:

- According to the Calculation Report issued by ARC Ltd as Calculation Agent for the insurance policy, the modelled drought response cost at the end of the risk period was below the trigger threshold for a policy pay-out

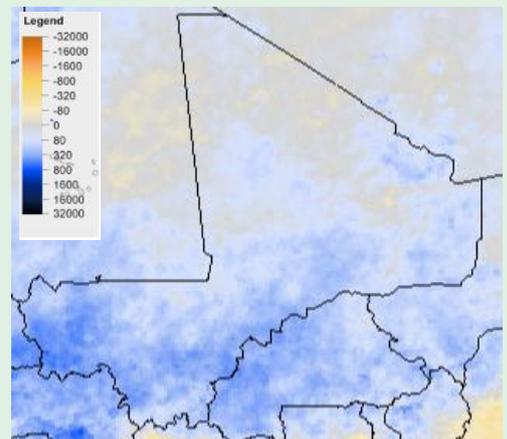
### RAINFALL

The rainfall season in Mali lasted from late May to October this year. The cumulative rainfall ranged between 100 mm in the northern parts to over 1,000 mm in the southern parts (see map 2). Hence the overall performance of the rains was normal to above-normal throughout the agricultural areas of the country (see map 3).

In terms of temporal distribution, when compared to the historical dekadal averages, the onset of the rains was relatively low during the third dekad of May; subsequently, the season was



MAP 2: CUMULATIVE RAINFALL (IN MM), MALI, ARC2 (21 MAY– 31 OCT 2015)



MAP 3: RAINFALL COMPARED TO AVERAGE (1983-2014), MALI, 21 MAY - 31 OCTOBER 2015 (ARC2)

characterised by well above-average rainfall as illustrated in figures 1 to 4 below for the regions of Sikasso, Kayes, Mopti, and Koulikoro. Indeed, some localised floods were reported between July and September in Kayes, Segou, Mopti, Gao, Tombouctou, and Koulikoro.

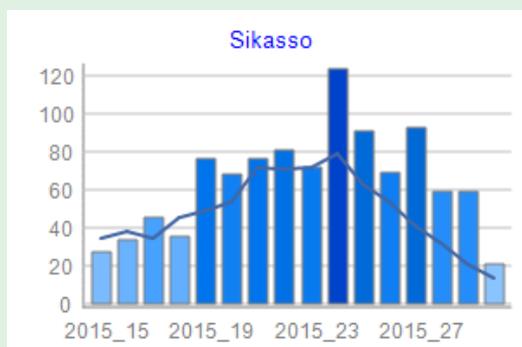


FIGURE 1: RAINFALL (MM) COMPARED TO NORMAL IN SIKASSO REGION, MALI, MAY 21-OCTOBER 2015 (ARC2)

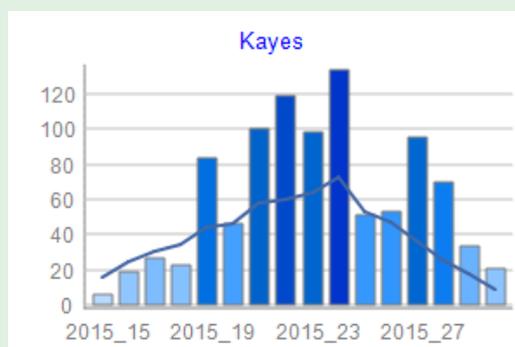


FIGURE 2: RAINFALL (MM) COMPARED TO NORMAL IN KAYES REGION, MALI, MAY 21-OCTOBER 2015 (ARC2)

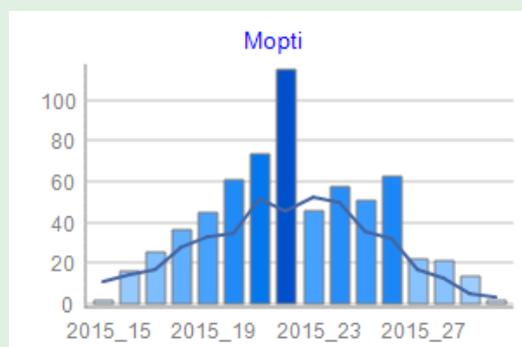


FIGURE 3: RAINFALL (MM) COMPARED TO NORMAL IN MOPTI REGION, MALI, MAY 21-OCTOBER 2015 (ARC2)

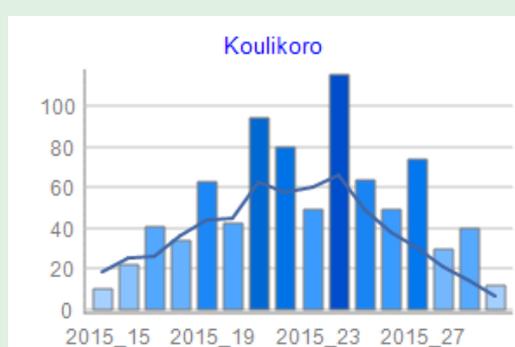


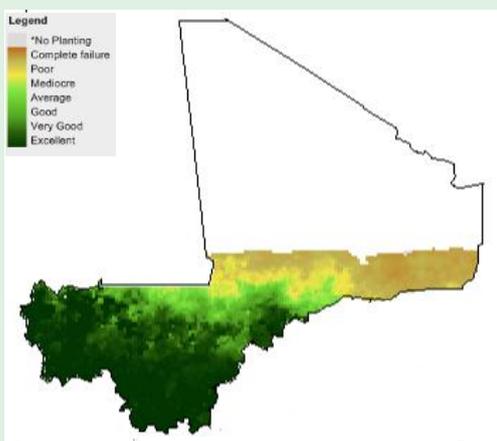
FIGURE 4: RAINFALL (MM) COMPARED TO NORMAL IN KOULIKORO REGION, MALI, MAY 21-OCTOBER 2015 (ARC2)

## DROUGHT

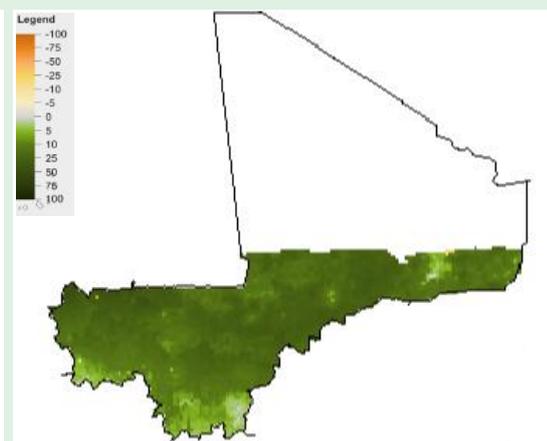
*Africa RiskView* uses the **Water Requirements Satisfaction Index (WRSI)** as an indicator for drought. The WRSI is an index developed by the *Food and Agriculture Organisation of the United Nations (FAO)*, which, based on satellite rainfall estimates, calculates whether a particular crop is getting the amount of water it needs at different stages of its development. To maximise the accuracy of *Africa RiskView*, countries intending to take out insurance customise the software's parameters to reflect the realities on the ground. In Mali, the software was customised using maize as the reference crop.

Despite a slightly delayed start of the season in many areas, the cumulative seasonal rainfall in Mali was generally normal to above normal, as discussed in the previous section. This is reflected in the croplands WRSI maps which show the final WRSI performance and compare the WRSI value to the 2001-2014 average (see maps 4 and 5). The end-of-season WRSI was above the 2001-2014 average in most parts of the country.

The trend depicted by *Africa RiskView* is confirmed by the [FEWS NET's croplands WRSI](#) that shows average to above average conditions as well. The *eMODIS Normalised Difference Vegetation Index (NDVI)* is another commonly used index that allows to measure the conditions of the vegetation on the ground. [The NDVI map for the end of October](#) indicates that above average vegetation conditions were observed throughout Mali, with the exception



MAP 4: ARV FINAL WRSI 2015/16, MALI



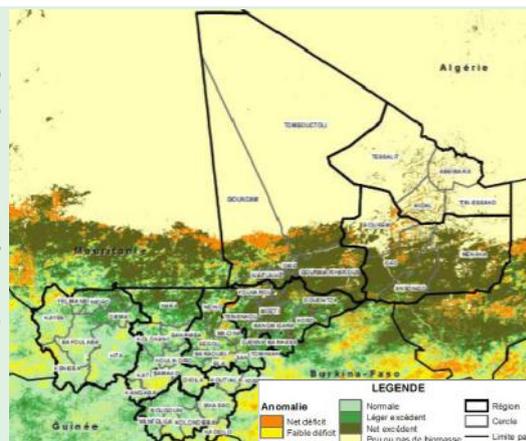
MAP 5: ARV WRSI COMPARED TO AVERAGE (1983-2014), MALI

### About ARC:

- The **African Risk Capacity (ARC)** is a specialised agency of the African Union designed to improve the capacity of AU Member States to manage natural disaster risk, adapt to climate change and protect food insecure populations.
- The **Africa RiskView** software is the technical engine of ARC. It uses satellite-based rainfall information to estimate the costs of responding to a drought, which triggers a corresponding insurance pay-out.
- The **ARC Insurance Company Limited** is the commercial affiliate of the ARC Agency, which pools risk across the continent through issuing insurance policies to participating countries.

of parts of northern Mopti region where the conditions were below normal. It is important to note however that the NDVI anomaly does not take into account the performance of specific crops.

In addition, the national early warning system (SAP) Provisional Crop Assessment Note indicates that this year's agricultural season was satisfactory as rainfall was generally sufficient. Nonetheless, the note also reports that some pockets in some regions (Kayes, Segou, Mopti, Tombouctou, and Gao) experienced production shortfalls due to rainfall deficits at the beginning of the season between May and June (see map 6). In these areas, some farmers planted late, beyond the window considered as optimal for planting, while others had to replant when the rains picked up. Additionally, the localised floods mentioned in the previous section are reported to also have negatively impacted crop growth due to water excess in some areas.



MAP 6: END OF SEASON BIOMASS ANOMALY, 2015/16, MALI (SOURCE: MALI SAP)

### AFFECTED POPULATION

*Africa RiskView* uses the WRSI calculations discussed in the previous section of this report to estimate the **number of people potentially affected by drought** for Mali, based on pre-defined vulnerability profiles at the sub-national level, which define the potential impact of a drought on the population living in a given area. Given that the final WRSI values were generally average to above-average in most areas, *Africa RiskView* does not detect any drought affected populations. Moreover, the November SAP Provisional Crop Assessment Note reported that harvests were underway and were adequate to meet to food needs of the populations (SAP Provisional Crop Assessment Note).

These results are also confirmed by [FEWS NET's October Food Security Outlook Update](#) report: the food insecurity situation-is expected to be minimal between October and December due to ongoing good harvests. However, there are localised areas in the districts of Kita, Macina, Nara, Tominian, San, Mopti, Nioro, Gao, and Menaka that are expected to have reduced harvests due to floods. As a result, FEWS NET estimates 15,000 people will experience a deteriorating food security situation to Stressed (IPC Phase 2) from March 2016.

### IMPLICATIONS FOR THE ARC RISK POOL

For the purposes of the insurance coverage, *Africa RiskView* converts the numbers of affected people into **response costs**. For countries participating in the insurance pool these national response costs are the **underlying basis of the insurance policies**. Pay-outs are triggered from the ARC Insurance Company Limited to countries where the estimated response cost **at the end of the season** exceeds a pre-defined threshold specified in the insurance contracts. The 2015/16 agricultural season in Mali was characterised by adequate rains in most parts of the country despite the late onset. According to the Calculation Report issued by ARC Ltd as Calculation Agent for the insurance policy, the modelled drought response cost at the end of the risk period was below the trigger threshold for a policy pay-out.

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