
EARLY WARNING BULLETIN FOR FOOD SECURITY

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1. SEASONAL RAINFALL PREDICTION FOR JULY-AUGUST-SEPTEMBER (JAS) 2024 & SOCIO-ECONOMIC IMPLICATIONS FOR THE GAMBIA

1.1 Introduction

The Department of Water Resources (DWR) produces the Seasonal Rainfall Prediction (SRP) annually in fulfilment of its statutory responsibility to advise the Government and people of The Gambia on all aspects of weather and climate. The SRP gives the outlook of rainfall patterns in The Gambia for the period July-August-September (JAS). DWR produces these forecasts using state-of-the-art forecasting tools and contemporary scientific knowledge. The information presented in the SRP publication is relevant for policy formulation, planning and decision making by operators, stakeholders, and individuals in both private and public sectors in The Gambia. The forecast is particularly useful for operators in weather-sensitive sectors such as agriculture, aviation, construction, water resources, disaster risk reduction, health, energy, trade and tourism, amongst others.

As in the previous years, the prediction was based on the strong tele-connection between El Nino/Southern Oscillation (ENSO) and Sea Surface Temperature (SST) anomalies over the Central Pacific Ocean (Nino 3.4 region) and Tropical North Atlantic Ocean and the rain bearing systems over The Gambia. On the inter-annual to seasonal time scales, the variability of sea surface temperature in the equatorial Pacific (El Nino / La Nina), tropical Atlantic and Indian Oceans influence rainfall during the period July-August-September in West Africa and particularly the Sahel. La Nina (or El Nino) conditions often coincide with the wet (dry) summer season over most of the Sahel. When the Gulf of Guinea is warm (or cool) during April-May-June-July, it is favourable for wet conditions (or dry) over the adjacent countries. When the tropical Atlantic is cold north of Equator and warm South of it (or warm in the north and cold in the south), it is favourable for dry conditions (or wet) in the Sahel and wet conditions (dry) over the Gulf of Guinea countries. The variations in sea surface temperature of the Indian Ocean influence rainfall over the eastern part of the Sahel (Chad, Sudan). Warming to the west of the Indian Ocean off the coast of east Africa is expected to favour a wet summer season over eastern Sahel.

1.2 JAS 2024 Rainfall Prediction

For the coming July-August-September period, considerable variations in the amount of rainfall in the various places over the country are expected, as shown on the map below (figure 1).

The predicted rainfall amount over the country is predicted very likely to be above average to likely average rainfall for the period of July-August-September (JAS) over The Gambia. The interpretation of that means the country's average is expected to have rainfall quantity of equal to or more than **1000mm** in the western sector of the country. Amount in the range of **750 - 950mm** are likely over the rest of the country. The predicted 2024 rainfall values would therefore be above normal over large areas of the country. The latest figures indicate a 45% chance of above normal rainfall, 35% chance of near-normal rainfall and 20% chance for below normal rainfall. Put in simpler terms, this means that the chance of having above normal rainfall is higher than the chance of having normal rainfall.

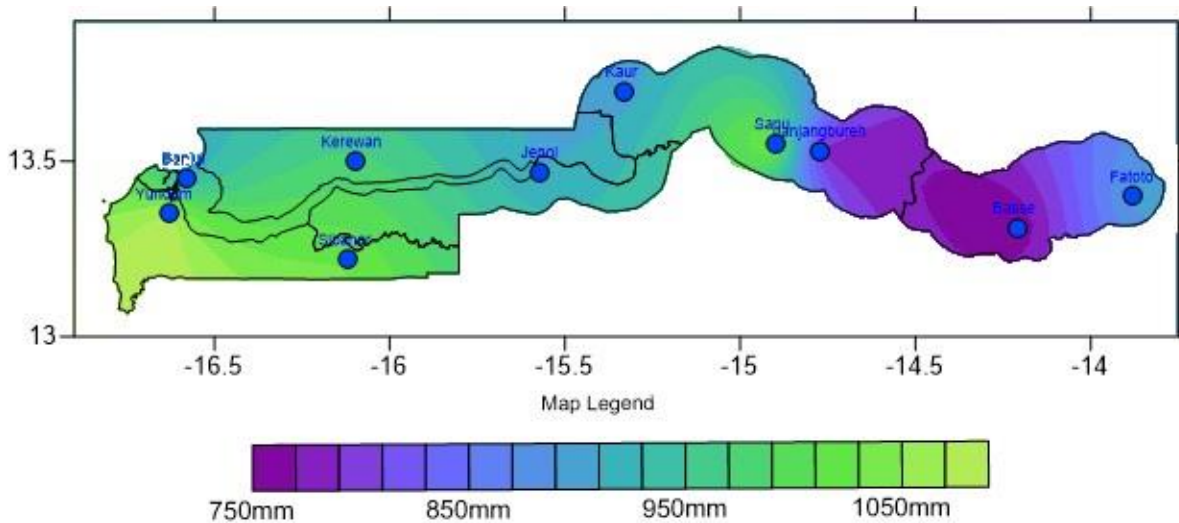


Figure 1: JAS 2024 forecast rainfall in mm

Furthermore, it is worthy of note that the 2024 rainfall season is expected to undergo more variability than the 2023 season with events such as early to normal onset, occasional flash flooding late or normal withdrawal of rains and short to average dry spells at the start of the rain season. Accordingly, this department will undertake to provide weekly climate and short to medium range weather forecasts to better anticipate impacts of intra-seasonal climate events.

1.3 Beginning of the farming season (Onset)

In an agrarian economy like in The Gambia, where rain fed-agriculture is predominant, rainfall onset for the commencement of farming season is crucial. It affects establishment of crops, agricultural production and subsequently, national economies. Failure in the timely establishment of rainfall onset usually affects farmers. It is essential that, after a given date, the rain will become fairly continuous

and sufficient to provide adequate soil moisture for and after planting is maintained as the season advances for successful establishment of crops. In 2024, The Gambia is expected to see rainfall onset between 09th and 15th June as illustrated in figure 2 below. These dates are expected to be generally early by up to 2 weeks over large parts of the country. Judicious use of these predictions in planning agricultural activities will lead to safe sowing and enhanced crop and food production. This information should be widely available to extension services and agencies that have the responsibility of advising farmers on appropriate time of planting and varieties to be planted.

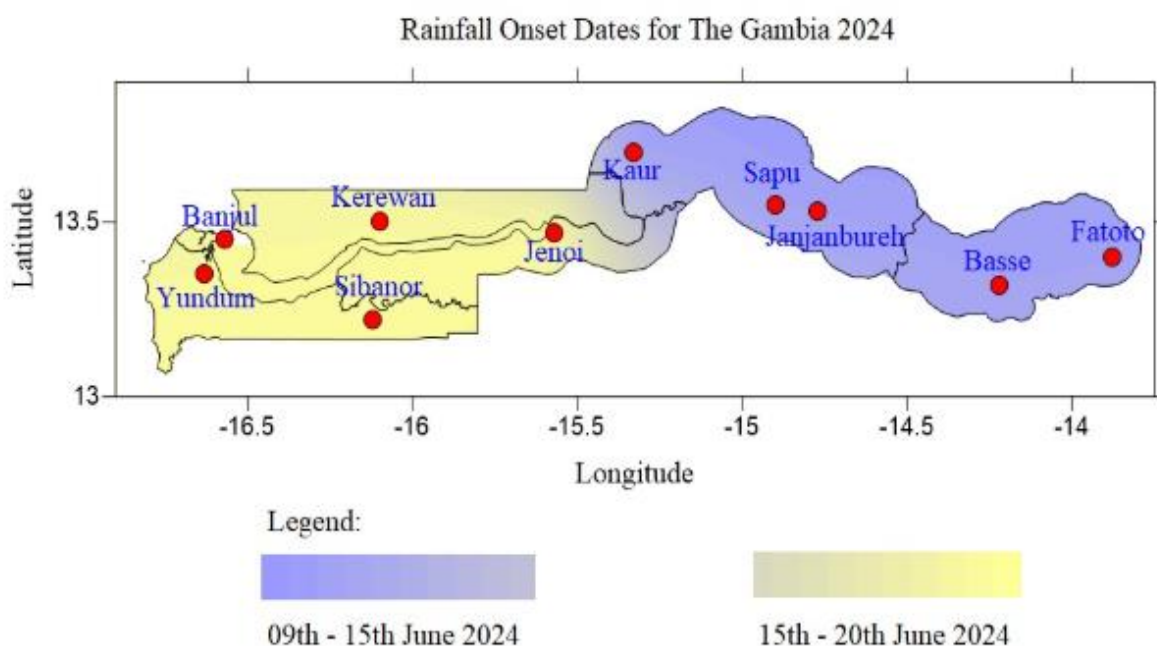


Figure 2: 2024 Forecast onset dates

A longer than normal length of season is predicted for most part of the country. It is expected to be in the range of 125-137 days.

Short to average dry spells are expected at the start of the rain season and towards the end of the season in most part of the country.

The Flow at the River Gambia is expected to be above normal flow.

2. POTENTIAL SOCIO-ECONOMIC IMPLICATIONS OF 2024 SEASONAL RAINFALL PREDICTION.

2.1 Possible Negative Implications of the 2024 Seasonal Forecast

The 2024 seasonal forecast, while predicting generally favourable characteristics, may also have negative implications alongside or instead of the more expected positive ones. Indeed, in areas where above-average rainfall totals, early season onset dates, above-average to average runoffs and short dry spells are expected, it is not excluded to observe inconvenient situations that can, for example, be linked to excess humidity, rapid filling of low-pressure areas and overflowing of rivers, the rise of groundwater, the poor preparation of the agricultural season and transhumance movements, the impassability of roads, the difficulties of travel and access to areas of vital, economic and health interests. Risks related to the negative implications of the rainy season The likely risks related to the expected characteristics of the 2024 rainy season can be many and varied depending on the area. The wet nature of the season portends significant risks of flooding, submersion and therefore reduction of arable land, destruction of infrastructure (homes, roads, markets and schools, etc.), loss of crops and fodder, drowning of livestock and human beings, proliferation of germs of waterborne and diarrheal diseases (cholera, malaria, schistosomiasis etc.), crop pest outbreaks, water pollution, restriction of movement of people and animals, soil water erosion, silting up of watercourses, weed outbreaks, post-harvest losses, loss of human and animal lives, etc.

2.2 For the agriculture sector

In view of the generally wet nature expected of the 2024 rainy season in The Gambia and shorter to average dry spell, it is recommended that farmers, herders, water resource managers, projects, NGOs and authorities:

- ✓ Invest more in high-yielding crops tolerant of wet conditions (rice, sugar cane, tubers, etc.),
- ✓ Develop irrigated crops, particularly in the floodplains of the River Gambia, while taking care of the risks of flooding,
- ✓ Set up systems for the collection and conservation of runoff water for agricultural and domestic uses in the dry season,
- ✓ Support the deployment of climate-smart techniques to increase crop and fodder yields, in particular those related to excess rainwater,
- ✓ Strengthen the information, supervision and agro-hydro-meteorological assistance systems to farmers,
- ✓ Facilitate farmer's access to improved seeds and agricultural inputs adapted to their needs,
- ✓ Prioritize high land areas for planting particularly areas along the River Gambia,
- ✓ Make the most of the above average runoff situations of the River Gambia, by developing irrigated crops particularly in URR and CRR, while avoiding the risk of flooding.

2.3 Disaster Management Sector

The overall rainfall expected in The Gambia and the overall above average flows expected of the river Gambia suggest a high risk of flooding that could lead to loss of crops, property and animal and human lives in exposed localities. To deal with those, it is recommended to:

- ✓ Strengthen the communication of seasonal forecasts and their updates in order to inform, raise awareness among communities about risks and strengthen their capacities to avoid disasters, by supporting the efforts of the press, disaster risk reduction platforms, NGOs and country EWS;
- ✓ Strengthen the monitoring and response capacities of agencies in charge of flood monitoring, disaster risk reduction and humanitarian aid,
- ✓ Advise against and avoid the uncontrolled occupation of flood-prone areas with habitations as well as crops and animals.
- ✓ Strengthen protective dikes and ensure the maintenance of bridges and road infrastructure,
- ✓ Clean drainage channels to facilitate the evacuation of rainwater,
- ✓ Closely monitor the alert thresholds in areas at high risk of flooding, particularly in the riverine areas;
- ✓ Provide reception sites for populations exposed to the disaster,
- ✓ Promote the cultivation of crops adapted to the persistence of situation of excess water in the soil.
- ✓ Closely follow the updates of these seasonal forecasts and the short and medium range forecasts produced and disseminated by the Department of Water Resources, Conduct simulation exercises as part of the preparation of flood response plans
- ✓ Maintain the strong collaboration between the hydrological and meteorological services in order to allow the anticipatory management of flood risks in the areas concerned.

2.4 Regarding health risks

Wetlands and flooded areas can be conducive to the development of water-related diseases (Cholera, malaria, diarrhoea, schistosomiasis, etc.). To this end, it is strongly recommended to:

- ✓ Strengthen the capacities of national health systems and national platforms for disaster risk reduction;
- ✓ Raise awareness and disseminate alert information on climate-sensitive diseases, in collaboration with meteorological, hydrological and health services,
- ✓ Prevent diseases, by vaccinating populations and animals, encourage the use of mosquito nets, set up stocks of medicine for curative treatments, especially in areas that will be difficult access following floods,
- ✓ Monitor water quality and set up stocks of treatment products
- ✓ Clean up agglomerations and avoid contact with contaminated water, through drainage and gutter cleaning operations;

- ✓ Sanitize inhabited areas and avoid contact with contaminated water, through drainage and cleaning of gutters ;
- ✓ Increase vigilance against diseases and pests of crops (armyworm and other insect pests);

2.5 Conclusion

A forecast is just a set of probabilities attached to a set of future events. In order to understand a forecast, all one needs to do is to interpret those bits of information. Unfortunately, there are problems in communicating each element, so that the user of a forecast understands what its producer means. Following the consistency between the seasonal forecast probabilities and the observed rainfall that has been issued since 1998, we are recommending that the JAS seasonal forecast issued each year in the month of May to be used by the policymakers as an early warning information. Timely climate information can lead to important decisions by producers that can dramatically increase productivity windows of opportunity. Armed with Climate information, important decisions can be made on amounts of food to store for food reserve and excess for sale as envisaged in Recovery Focused National Development Plan 2023 - 2027. Pleased to inform the Cabinet and all those involved in monitoring agricultural production that the update of the 2024 seasonal rainfall prediction will be made by the Department of Water Resources at the end of June 2024.

3. PROGRESS OF THE RAINY SEASON

3.1. Synoptic Situation

The mean surface position of the Inter-Tropical Discontinuity (ITD), a boundary layer that separates the dry north-easterly trade winds from the moist south westerly is about 1°N above The Gambia with its eastern axis lying across over southern Mali and then slopping onto central Niger and southern Chad.

Places to the north of the ITD remained dry and with hazy conditions observed over some parts of northern Mauritania, Algeria and Libya. Whereas places to the south of the ITD were characterised by convective activities resulting to rain and thunderstorms, occasionally associated with strong winds, especially over Nigeria, Benin, Togo, Ghana and the rest of the Gulf of Guinea States.

3.2 Weather outlook for the next dekad (1st – 10th June 2024)

The next dekad is expected to witness building of humidity and gradual surge of monsoon across the country. While the western part of the country will be dominated by north to north-westerly winds, warm atmospheric conditions with development convective clouds will dominate over eastern part of the country.

3.3 Rainfall Situation

The rainfall situation during this dekad (21-31 May 2024) showed the first rainfall figures recorded in the country, notably in the eastern and middle sectors of the country, with Janjanbureh in the middle sector recording the highest dekadal total of 27.3mm. Elsewhere in the extreme eastern sector, Basse and Fatoto recorded 24.5mm and 15.5mm respectively. Other stations recorded between traces of rain to 3.6mm over Sibanor in the western sector, figure 1 below.

However it is important to note that even though some of these rainfall figures exceeds 20mm, it is not advisable to sow seeds such as groundnut as the moisture content in the soil is not yet enough to support crop establishment, besides the expected discontinuity in the available moisture for the next few days might cause some germination failures and may led to loss of viable seeds.

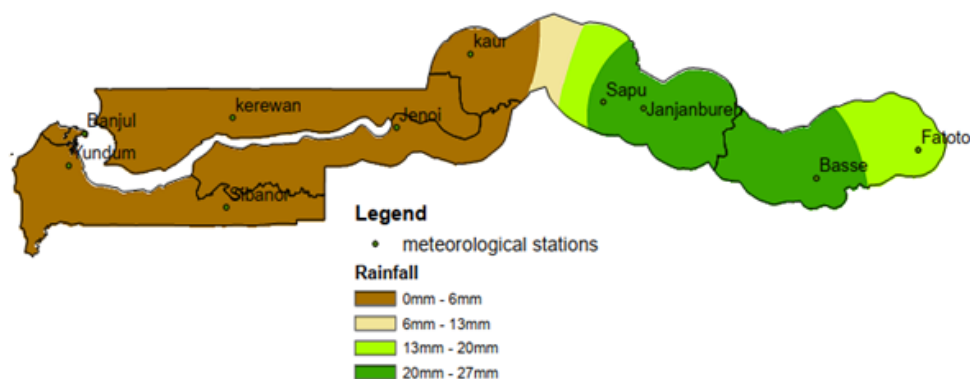


Figure 3: Decadal rainfall totals 21st - 31st May 2024

3.4 Agrometeorological Situation

Recorded mean temperatures during the dekad varied from 37°C over the eastern and middle sectors dropping to 34°C over the western sector of the country. The maximum temperature also varied between 46°C over the eastern and middle sectors to 42°C over the western sector. Extreme temperatures reached a minimum of 22°C in the western sector, whereas maximum temperatures reached 44°C recorded over the eastern sector of the country.

Winds were light, mostly moderate during the dekad, with maximum wind gust of 64km/h recorded on the 27th of May, over the eastern sector of the country.

Average sunshine recorded during this dekad reached 10 hours across the country.

Minimum relative humidity (RH) recorded across the country varied between 14% over Fatoto in the eastern sector to 39% over Yundum in the western sector; whereas maximum RH recorded was above 80% in the entire country.

3.5 Hydrological Situation

As precipitation is expected by mid-June, surface water levels are expected to increase, perennial streams are equally expected to rejuvenate. Groundwater tables in the eastern part of the country, URR

and CRR are expected to rise, even though significant rise in groundwater table is observed in July-August period.

Generally, the 2024 seasonal forecasts predict an above normal flow season for the JAS period, rivers and surface water flows are expected to play vital ecosystem functions for forest restoration, navigation to streams for tourism sector. However, preparation for the emergence of water borne diseases is to be taking into consideration, including clearing of gutters, distribution of mosquito nests, and relevant vaccines and anti-bodies to be set in place.

Farmers are advice to level sloppy areas in their farms to help control heavy run-off, in addition to minimizing the use of pesticides, herbicides and associated chemicals that might either leach to the groundwater table, or flow to nearby rivers or streams.

For the livestock sector, they are highly advice to rehabilitate or establish new water capturing points for the cattle herders. An added advantage would be realized should high yielding fodder varieties are planted to supplement fodder supply in the dry season.

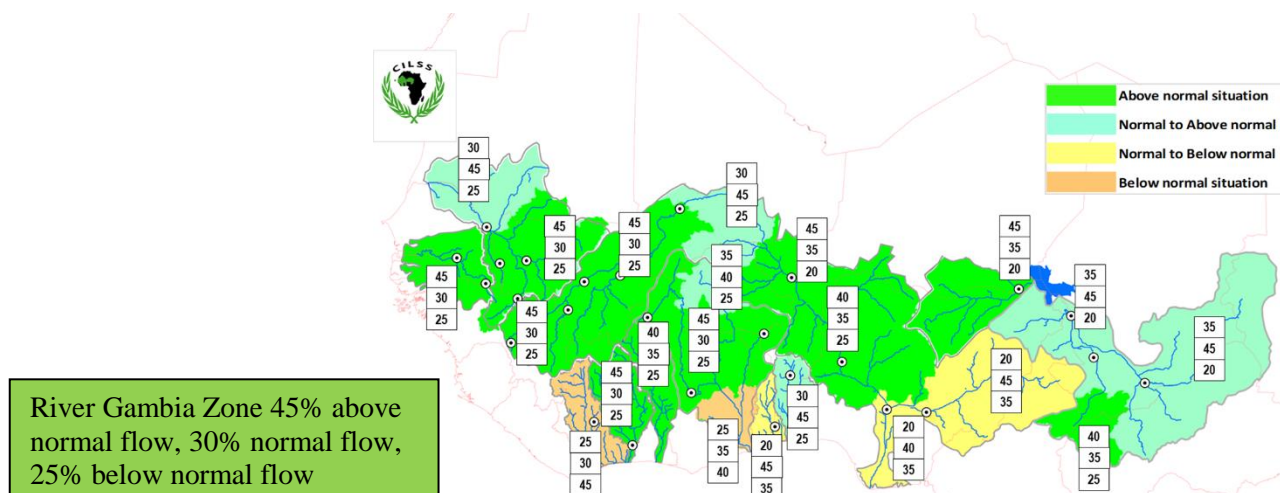


Figure 4: 2024 Hydrological forecast map for the Sahelian and Sudan Sahara zones.

3.6. Agricultural Situation

3.6.1 Crop Situation

The major agricultural activities across the country are field clearing, acquisition and treatment of seeds and repairing of farming implements. Farmers are anticipating for seeds distribution by the government of The Gambia, which is not yet done in any of the agricultural regions.

Vegetable production in the West Coast Region is also ongoing, especially sowing of rainy season vegetable crops like okra and pepper.

In the irrigated dry season rice production areas in the Central River Region, the phenological phases of rice fields vary from panicle formation to full majority.

Some farmers in the North Bank Region are engaged in dry sowing of early millet fields, whilst in the Upper River Region a few farmers are sowing early millet after the two rains that occurred during the dekad. A few farmers in URR are also engaged on dry ploughing in their rice fields.

3.6.2 Livestock Situation

The livestock situation across the country is not impressive as farmers continue clearing and burning of agricultural fields in preparation of the coming rainy season, thus impeding the grazing process and imposing negative impacts to milk production as well as causing weaknesses to livestock.

3.6.3 Pests and Diseases Situation

During the dekad under review, there were no reports of plant and disease outbreak.

3.6.4 Market Situation

Nil

Banjul, June 04, 2024
National MWG of The Gambia

Composition of MWG: Department of Water Resources (DWR) – Focal Point Department of Planning - MOA Department of Agriculture (DOA) Department of Livestock Services (DLS) Plant Protection Services - DOA National Disaster Management Agency (NDMA)	Direct your comments and questions to: The Director Department of Water Resources 7 Marina Parade, Banjul The Gambia Tel: (+ 220) 422 76 31 / 998 38 45 Email: touraylm@yahoo.co.uk
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