Seasonal Monitor

ASIA-PACIFIC, MARCH 2023

REGIONAL BUREAU FOR ASIA AND THE PACIFIC

Note: Countries in the region have been classified into three zones according their geographical location (latitude, longitude) and climate (rainfall and temperature). This classification do not correspond to any official subregions or categories

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1. Climate Overview

Summary

Hazards

In March 2023, heavy rains caused floods in India, Indonesia, Philippines and Vanuatu. In India, thousands of people in many states were affected, with over 18,000 hectares of farmlands in Maharashtra damaged. In Indonesia, over 23,000 people in Sumatra were affected. In the Philippines, over 6,900 people in Region six and Davao de Oro were affected and over 2,500 people were displaced. In Vanuatu, 80 percent of the population (over 250,000 people) were affected by tropical cyclones Judy and Kevin; Tafea and Shefa provinces were the worst-affected areas.

Snowfall and heavy rains killed at least three people in nine provinces of Afghanistan with over 750 houses destroyed.

December 2022-March 2023 Rainfall

Drier-than-average conditions continued in Afghanistan, northern Pakistan, Tajikistan and the Kyrgyz Republic. The growing of winter barley and wheat crops remained under mixed weather conditions in these countries.

There was slight to moderate rainfall in major parts of Bangladesh, eastern India, the Philippines and Sri Lanka. Growing of dry season rice is ongoing under favourable weather conditions, except flood-affected areas.

Wetter than average rainfall was observed across Fiji, some parts of Indonesia, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu.

Short Term Forecast (1-10 April 2023)

Below-average rainfall conditions are forecast for the Kyrgyz Republic, Tajikistan, and major parts of Bangladesh, Cambodia, northeastern India, Lao PDR, Myanmar, and Nepal.

Wetter than average conditions are forecast in major parts of Afghanistan, Bhutan, DPR Korea, northern and eastern India, northern Pakistan, southern Philippines, Java of Indonesia, and Timor Leste.

Seasonal Outlook (April-June 2023)

Higher than normal rainfall is likely in northern Cambodia, Fiji, Papua of Indonesia, southern Lao PDR, southern Myanmar, Philippines, southern Papua New Guinea, and Vanuatu.

Drier conditions are projected in some parts of northeastern India, Indonesia (Java, southern and western Kalimantan, southern Sumatra), Kiribati, northern Myanmar, Sri Lanka, and Tuvalu.

Estimated crop production (2023)

2023 agricultural prospects are generally favourable, except for Myanmar and Sri Lanka, where cereal outputs are anticipated well below the five-year averages, as limited availability and high prices of agricultural inputs caused reductions in the area planted and yield. In addition, lower than the five-year average rice production is expected in Pakistan caused by the severe floods in 2022. Furthermore, a localized outbreak of locust in Baluchistan may affect negatively to the wheat production prospects.

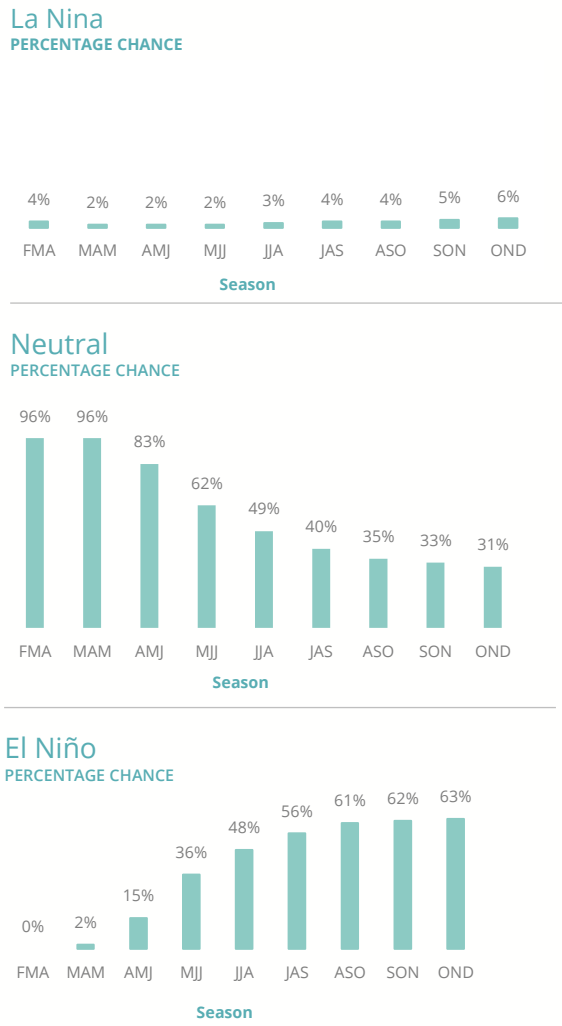
La Niña/El Niño Outlook

ENSO-neutral is anticipated during spring and early summer or April-June 2023 (83 percent possibility). There are increasing chances of El Niño during July-September 2023 (56 percent possibility) (Figure 1)[1].

There is an increased chance of below-average rainfall during April-June 2023 in some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), northeastern India, northern Myanmar, Kiribati, Sri Lanka and Tuvalu. During the forecast period, rainfall is likely to be above average (>70 percent possibility of exceeding median rainfall) in northern Cambodia, Fiji, Papua of Indonesia, southern Lao PDR, southern Myanmar, Philippines, southern Papua New Guinea, and Vanuatu. Rainfall is likely to be near the normal condition across Afghanistan, Pakistan, Kyrgyz Republic and Tajikistan, Bangladesh, Bhutan, DPR Korea, India, and Nepal [2].

Sea surface temperatures in March 2023 were close to average across major parts of the tropical Pacific Ocean. Below-average sea surface temperatures continued across the central Pacific Ocean while there were above-average sea surface temperatures in the eastern Pacific Ocean.[3]

FIGURE 1: IRI/CPC PROBABILISTIC ENSO OUTLOOK (RELEASED 9 MARCH 2023)



[1] Source: IRI Climate Forecasts

Zone 1

Afghanistan

Kyrgyz Republic

Pakistan

Tajikistan

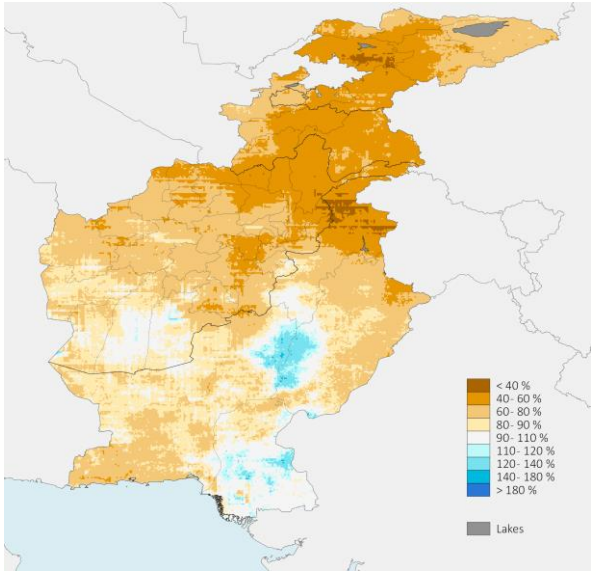
Zone 1: Rainfall Performance

Drier-than-average conditions were experienced in most of Zone 1

RAINFALL AS A PERCENT OF AVERAGE, DECEMBER 2022-MARCH 2023

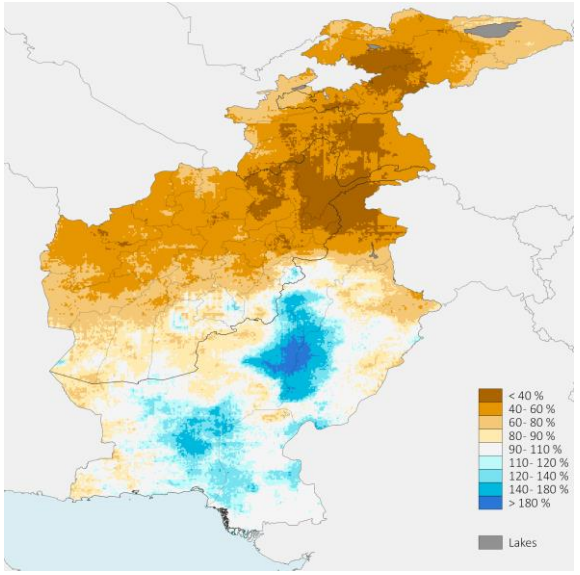
MAP 1: LAST THREE MONTHS

20 DEC 2022 — 20 MAR 2023



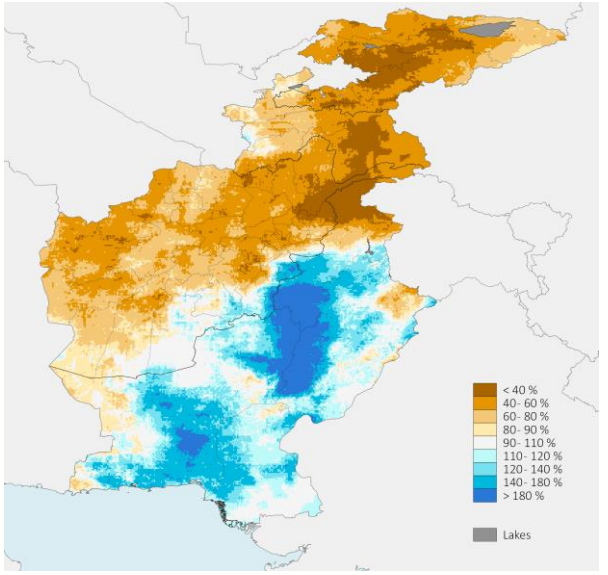
MAP 2: LAST MONTH

20 FEB 2023 - 20 MAR 2023



MAP 3: LAST TEN DAYS

11-20 MAR 2023



Between **December 2022-March 2023**, drier than average conditions were observed in major parts of Afghanistan, Kyrgyz Republic, northern Pakistan, and Tajikistan with less than 50 mm of average monthly rainfall (Map 1).

In the last month, **20 February-20 March 2023**, drier than average conditions continued in major parts of Afghanistan, the Kyrgyz Republic and Tajikistan, but light rainfall (40-90 mm of average monthly rainfall) was observed across eastern Afghanistan and Pakistan (Map 2). In the last ten-day rainfall period, **11-20 March 2023**, light rainfall (20-70 mm) was observed in eastern Afghanistan and major parts of Pakistan (Map 3).

In **Afghanistan**, snowfall and heavy rains during 24-25 March 2023 killed at least three people and destroyed over 750 houses across nine provinces in different parts of the country (Balkh, Zabul, Faryab, Uruzgan, Nimroz, Nangarhar, Kunar, Nuristan, and Laghman)[4]. In **Pakistan**, floodwater decreased in many flooded areas across the country. As of 6 March 2023, an estimated 1.8 million people remained exposed to or living close to flooded areas, which decreased from 4.5 million people in January[5].

There is an increased likelihood of geographical locust outbreaks in Pakistan due to the favourable conditions induced by higher-than-average rainfall from the impact of La Niña in 2022 and the widespread egg-laying observed. A few locusts may occur on the southwest coast of Baluchistan during the spring season (April-May)[6].

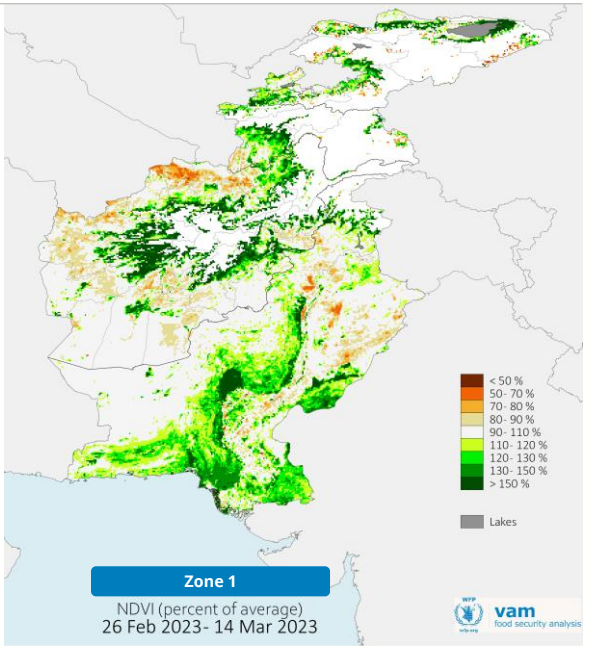
Zone 1: Rainfall Vegetation and Crop Conditions

An above-average vegetation index for 26 February - 14 March 2023 in some parts of eastern and central Afghanistan, southwestern Kyrgyz Republic, major parts of Pakistan (except flood-affected areas), and southwestern Tajikistan is largely the result of heavy monsoon rainfall during June-September 2022.

In contrast, below-average vegetation continued in some parts of western Afghanistan, eastern Kyrgyz Republic, and northeastern Pakistan due to below-average rainfall (Map 4).

This zone had an above-average vegetation index in recent weeks

MAP 4: **NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 26 FEBRUARY-14 MARCH 2023**



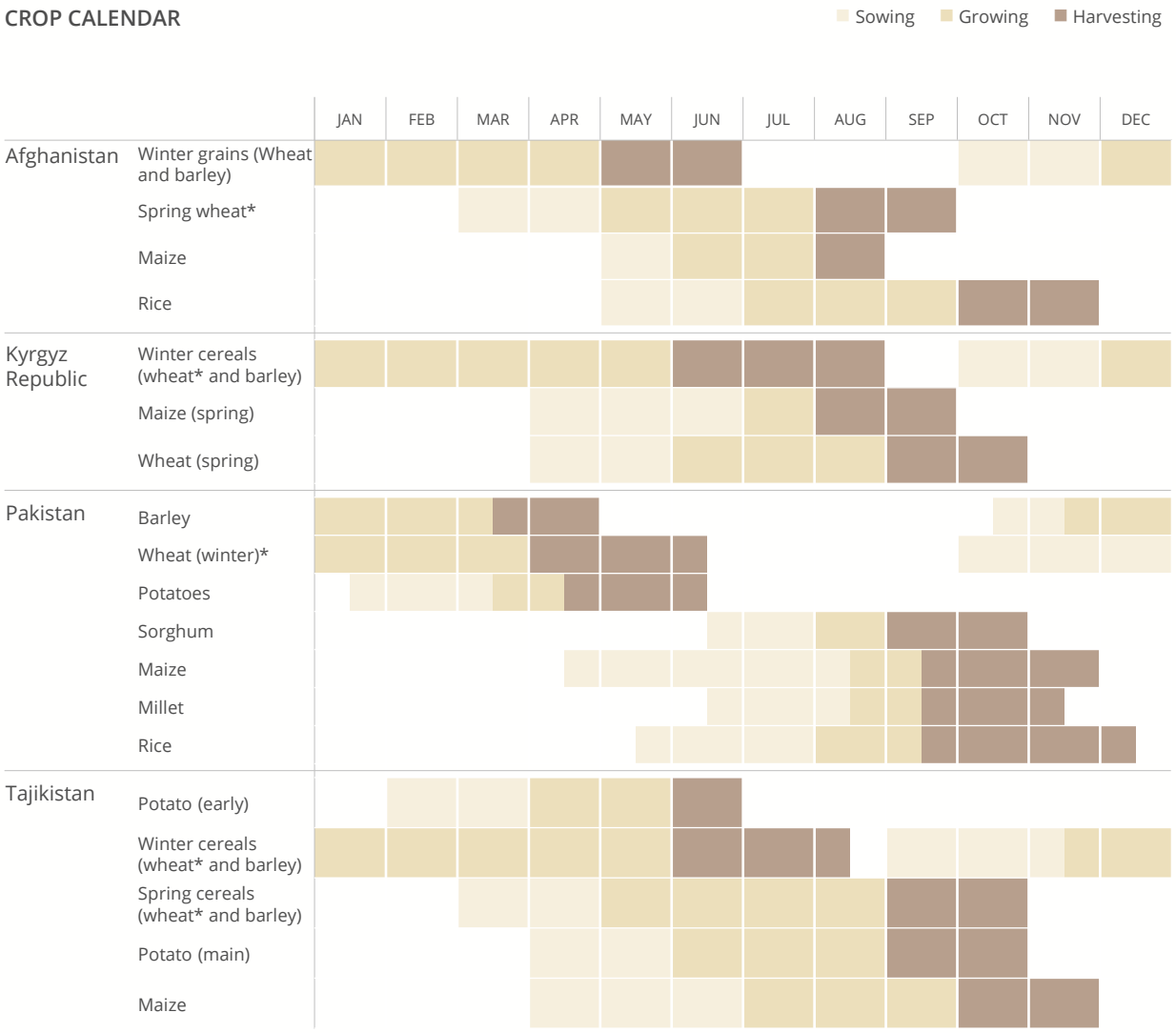
In **Afghanistan**, the growing of winter wheat and barley continued in March 2023 under mixed weather conditions (except snowfall-affected areas), while some parts of the southeastern region experienced abnormal dryness[7]. The output of wheat is expected at a five-year average level of 4.5 million tons[8].

In the **Kyrgyz Republic**, the growing of winter wheat and barley crops continued in March 2023 under mixed weather conditions. As of 8 March 2023, the output of barley (450,000 tons) is expected at 6.8 percent higher than the five-year average level due to large plantings, while the output of wheat is expected at a five-year average level of 570,000 tons[9].

In **Pakistan**, the growing of winter wheat and barley in March 2023 continued under mixed weather conditions, while dry weather conditions were observed in most parts of the country, particularly in Azad Kashmir[10]. The outputs of 2022/23 wheat (26.4 million tons) and rice (9.2 million tons) are expected to decrease by 3 percent and 29 percent respectively from the previous year due to the long impacts of extensive flooding from June to October 2022. The output of rice is expected to decrease by 16.7 percent from the five-year average level, while the output of wheat is expected to increase by 2.5 percent from the five-year average level [11].

In **Tajikistan**, the growing of winter wheat and barley continued in March 2023 under mixed weather conditions. The outputs of wheat and barley are forecast at a five-year average level of 820,000 tons and 135,000 tons[12].

CROP CALENDAR

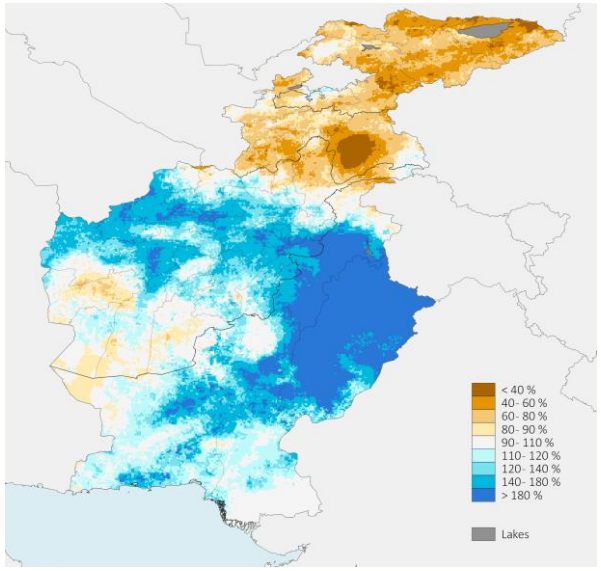


Source: FAO/GIEWS, FEWSNET. Periods are rounded to half-months.

Zone 1: Climate Outlook, April to June 2023

Rainfall is expected to vary greatly in different countries across zone 1 in the short-term

MAP 5: SHORT-TERM RAINFALL FORECAST AS A PERCENT OF AVERAGE, 1-10 APRIL 2023

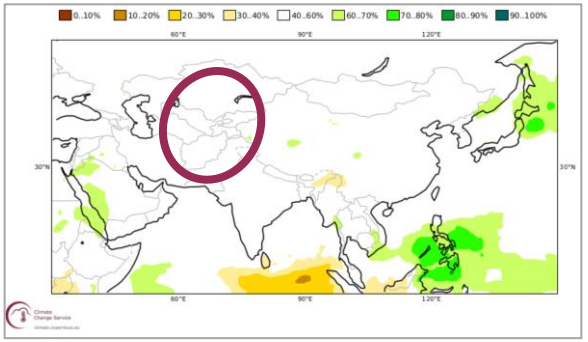


The short-term forecast for 1-10 April 2023 (Map 5) shows below-average rainfall across the Kyrgyz Republic and Tajikistan. In contrast, it shows higher than-average rainfall in major parts of Afghanistan and northern Pakistan.

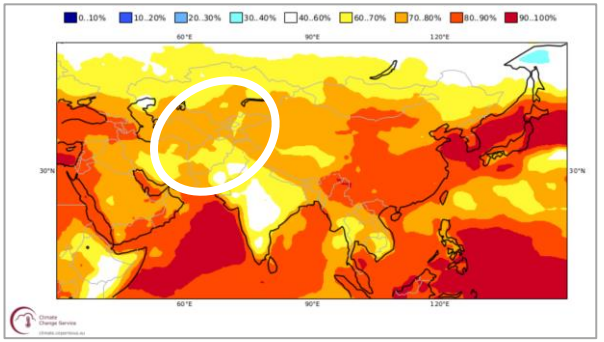
Rainfall during April-June 2023 (Map 6) is likely to be near average across Afghanistan, the Kyrgyz Republic, Pakistan, and Tajikistan.

During the forecast period, air temperature will likely be above normal across Afghanistan, the Kyrgyz Republic, northern and western Pakistan, and Tajikistan. In contrast, near-average air temperature is likely in some parts of southern and eastern Pakistan (Map 7).

MAP 6. LONG TERM RAINFALL FORECAST APR-JUN 2023, PRECIPITATION > MEDIAN, %.



MAP 7. LONG TERM TEMPERATURE FORECAST APR-JUN 2023, 2m TEMPERATURE > MEDIAN, %



Map 6: C3S multi-system seasonal forecast probability (precipitation > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC AMJ 2023
Map 7: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC AMJ 2023

Zone 2

Bangladesh

Bhutan

Cambodia

DPR Korea

India

Lao PDR

Myanmar

Nepal

Philippines

Sri Lanka

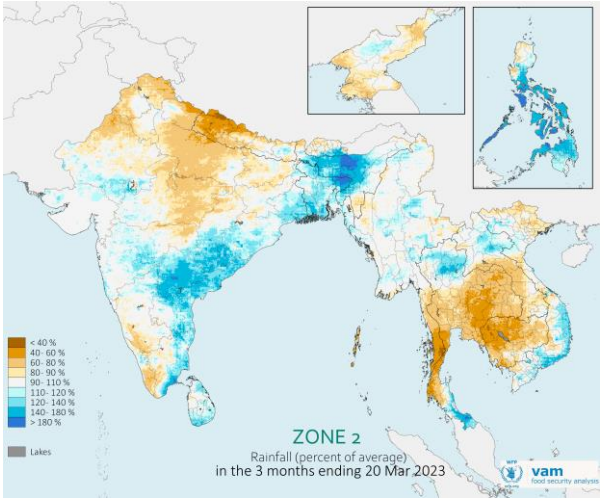
Zone 2: Rainfall Performance

Rainfall varied greatly in different countries across Zone 2

RAINFALL AS A PERCENT OF AVERAGE, DECEMBER 2022-MARCH 2023

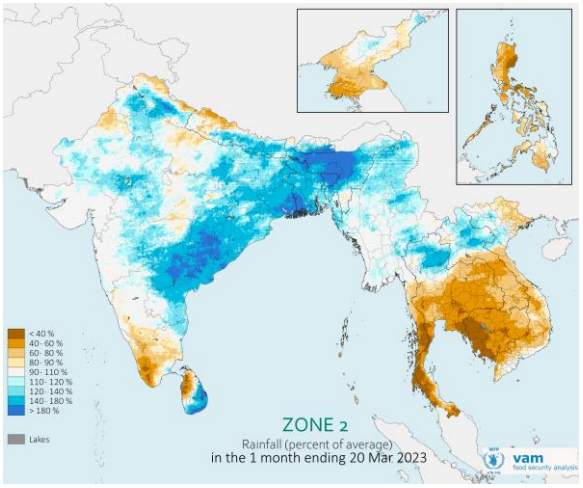
MAP 8: LAST THREE MONTHS

20 DEC 2022 — 20 MAR 2023



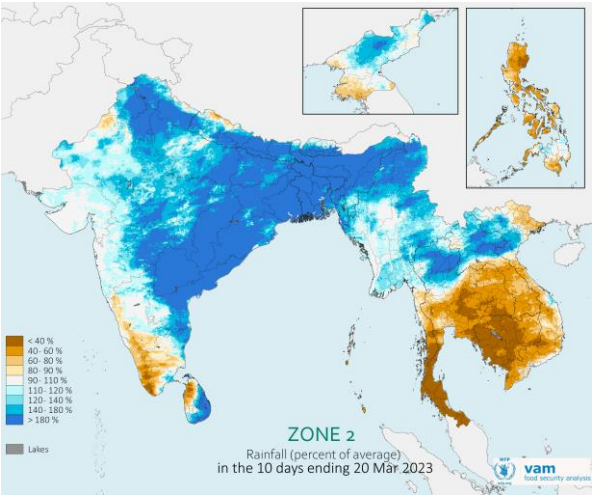
MAP 9: LAST MONTH

20 FEB 2023 - 20 MAR 2023



MAP 10: LAST TEN DAYS

11-20 MAR 2023



Rainfall during December 2022-March 2023 (Map 8) was light to moderate above average (>120 mm of average monthly rainfall) in Bangladesh, eastern and northeastern India, Philippines, and Sri Lanka, while it was drier than average in Cambodia, central India, central Lao PDR, southern Myanmar, and western Nepal.

Wetter-than average conditions continued during **20 February-20 March 2023** in Bangladesh, Bhutan, major parts of India, eastern Nepal, and southern Sri Lanka, while drier than average conditions continued in Cambodia, southern DPR Korea, central and southern Lao PDR, and Philippines (Map 9).

Above average rainfall (>140 mm of average monthly rainfall) during **11-20 March 2023** was observed in Bangladesh, southern Bhutan, central DPR Korea, major parts of India, northern Myanmar, Nepal, northern Lao PDR and southern Sri Lanka, while drier than average conditions were observed in Cambodia, central and southern Lao PDR, and major parts of Philippines (Map 10).

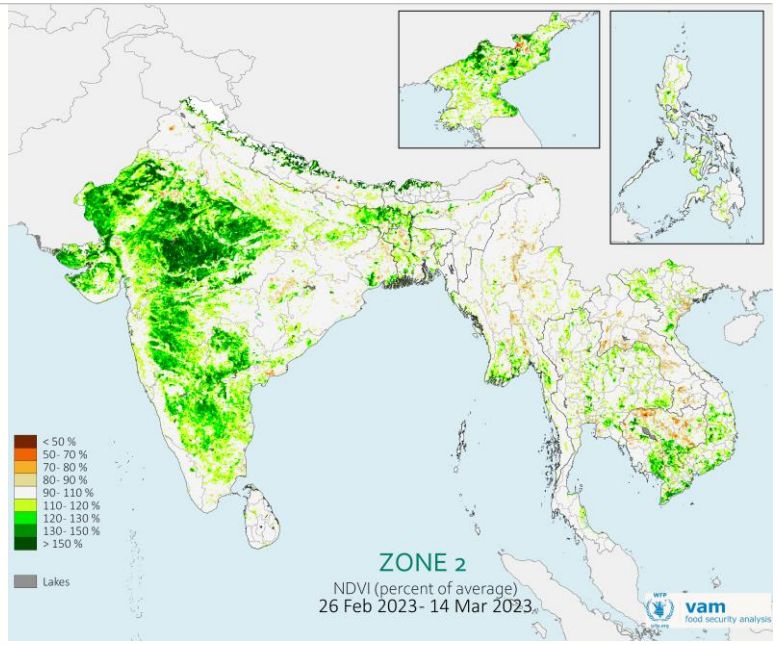
In **India**, unseasonal rains and hailstorms in March 2023 affected thousands of people in many states, particularly in Maharashtra, Rajasthan and Punjab. Over 18,000 hectares of farmlands (wheat, gram, vegetables) in Maharashtra were damaged by severe rains and hailstorms[13]. In the **Philippines**, heavy rains since 13 March 2023 caused floods and landslides in the central part of the country, particularly in Region six and Davao de Oro; as of 19 March 2023, over 6,900 people were affected and over 2,500 people were displaced[14].

Zone 2: Rainfall Vegetation and Crop Conditions

The wetter conditions during June- September 2022 and increased soil storage or river flow contributed to favourable vegetation conditions across Zone 2 by 26 February-14 March 2023 (Map 11). Above-average vegetation was observed in northern Bangladesh, northern Bhutan, central Cambodia, DPR Korea, India, and northern Nepal. In contrast, below-average vegetation continued in some parts of central Myanmar and Lao PDR due to below-average rainfall.

This zone had a favourable vegetation index in recent weeks

MAP 11: NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 26 FEBRUARY-14 MARCH 2023



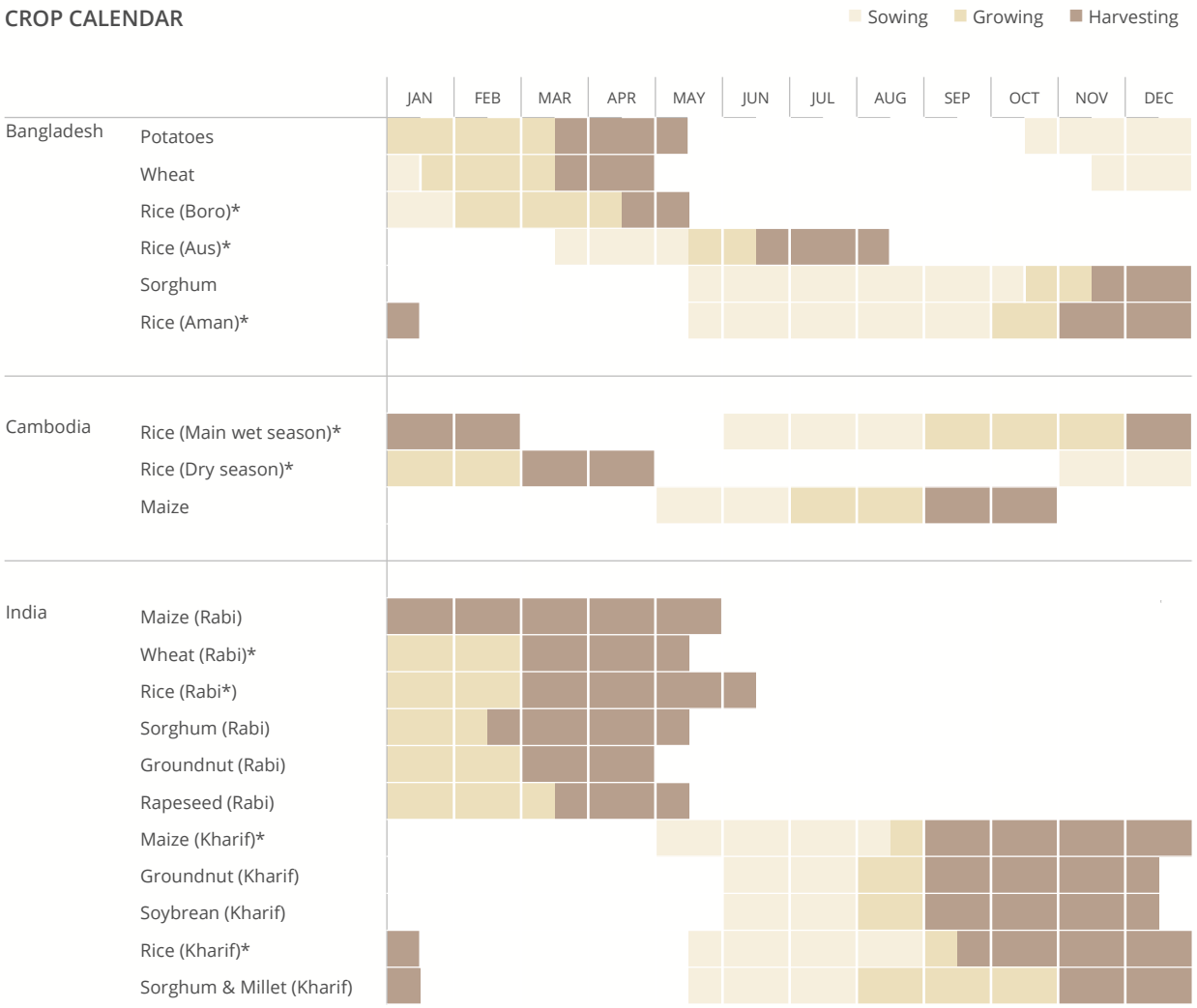
In **Bangladesh**, the growing of Boro season rice crops in March 2023 continued under favourable weather conditions, and the harvesting of Boro season wheat began in March 2023. The 2022/23 output of wheat (1.1 million tons) is expected at 5 percent lower than the five-year average due to reduced winter duration and reduced planted areas [15].

In **Bhutan**, cereal production (corn, rice, wheat) in 2022/23 is estimated at a five-year average level of 76,000 tons [16].

In **Cambodia**, the harvesting of dry-season rice in March continued under good weather conditions. 65 percent of the cultivated areas were already harvested, and the yield is estimated at 4.6 tons per hectare which is higher than the three-year average for 2020-2022 (3.8 tons per hectare). The total planted area of dry season rice was 682 thousand hectares, 6.7 percent higher than the total planted areas in 2022[17]. The total 2022/23 output of rice is estimated at 5.9 million tons, 3.9 percent higher than the five-year average.

In **India**, harvesting of Rabi crops (rice and wheat) began in some planted areas in March 2023 and harvesting of maize and sorghum continued under favourable weather conditions. The 2022/23 output of rice is estimated at 132 million tons which is 9.6 percent higher than the five-year average for 2017-2021 (120.4 million tons) [18]. As of 8 March 2023, the total 2022/23 output of maize is estimated at 34.6 million tons which is 15 percent higher than the five-year average for 2017-2021 (30.1 million tons).

CROP CALENDAR

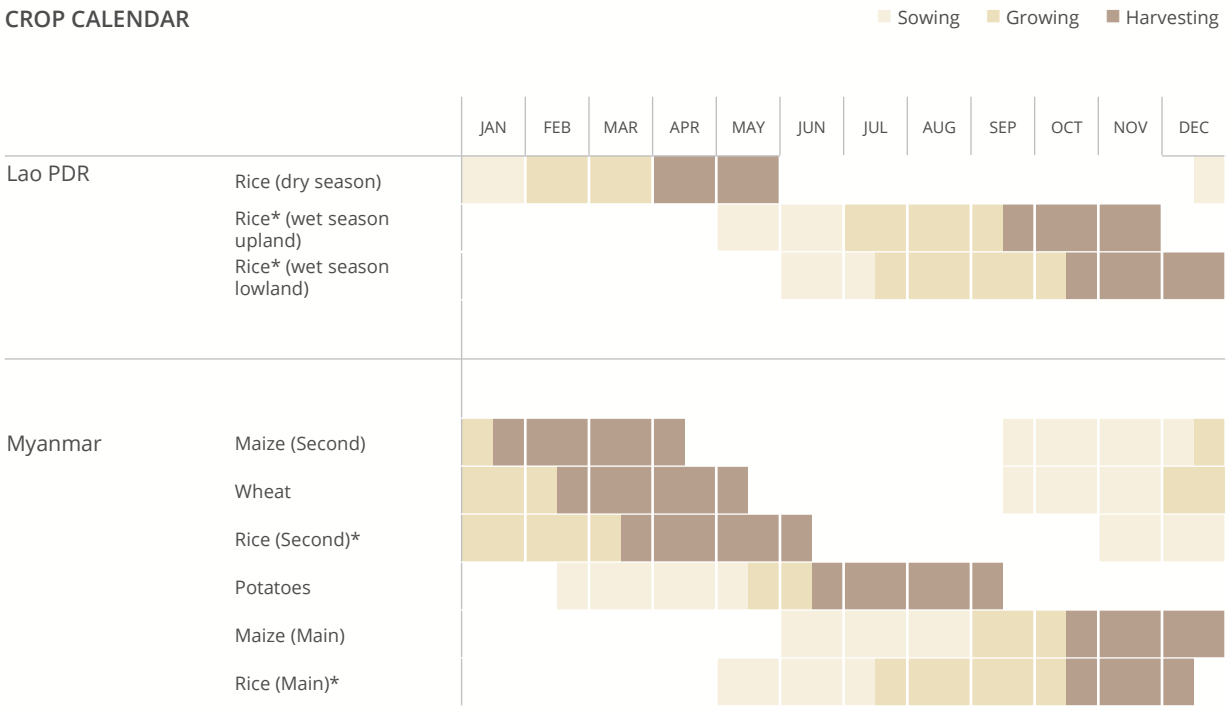


Source: FAO/GIEWS, WFP CFSAM. Periods are rounded to half-months.

In **Lao PDR**, the growing of dry season rice in March 2023 is in young panicle forming stage under sufficient irrigation water from rainfall in late February and favourable sunshine. The total planted area of dry season rice was about 96,000 hectares (101 percent of the national plan). The total planted area of dry season in 2023 increased due to enough irrigation water and farmers' high price expectations[19]. The total 2022/23 output of rice is estimated at 1.95 million tons, 6.8 percent higher than the five-year average.

In **Myanmar**, the growing of dry season rice in March 2023 is in the young panicle formation stages under favourable weather conditions due to adequate irrigation water and sunshine. The total planted area of dry season rice was 870,000 hectares, 81 percent of the national plan (1.1 million hectares), and the output of dry season rice is expected to be higher than last year[20]. The total 2022/23 output of rice, including wet season and dry season crops, is forecast at 23.8 million tons, 10 percent below the five-year average due to a shortage of chemical fertilizers with high prices

CROP CALENDAR



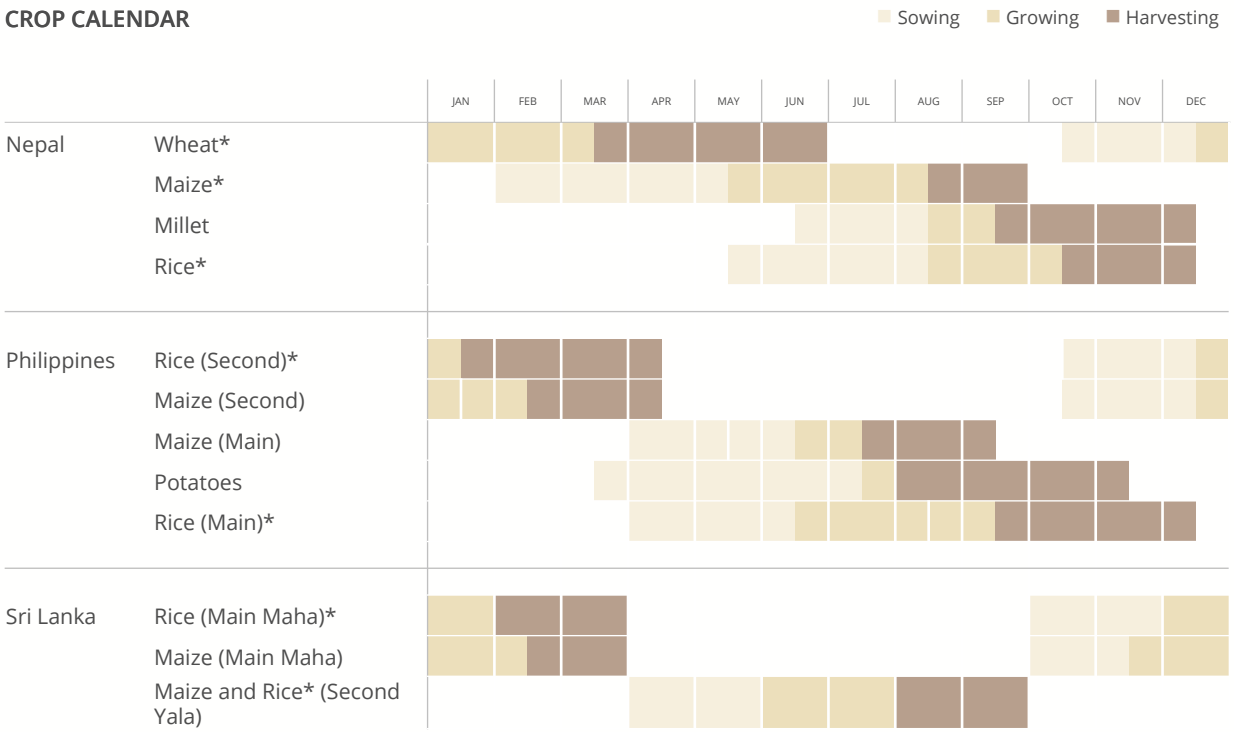
Source: FAO/GIEWS, WFP CFSAM. Periods are rounded to half-months.

In **Nepal**, the harvesting of winter wheat began in March 2023. The total output of wheat is expected at a five-year average level of 2.1 million tons[21].

In the **Philippines**, the growing of dry season rice in March 2023 is in maturing to harvesting stages under fair to good weather conditions as most parts of the country received average to above average rainfall [22]. The total 2022/23 output of rice is estimated at 12.4 million tons, 2 percent higher than the five-year average.

In **Sri Lanka,** harvesting of 2022/23 Maha season maize and rice was finalized in March 2023 under good weather conditions. The total outputs of Maha season rice (2.7 million tons) and maize (249,600 tons) are expected at 8.2 percent and 21 percent respectively lower than the five-year average[23]. The total 2022/23 output of rice is estimated at 2.5 million tons, 14 percent lower than the five-year average due to decreased planted areas and a shortage of chemical fertilizers.

CROP CALENDAR



Source: FAO/GIEWS, WFP CFSAM. Periods are rounded to half-months.

Zone 2: Climate Outlook, April to June 2023

Drier than average conditions are expected across many countries in the short-term

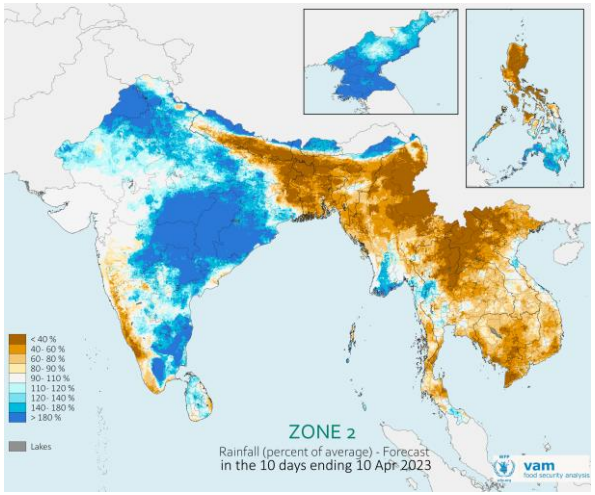
The short-term forecast during 1-10 April 2023 indicates drier than average conditions in major parts of Bangladesh, Cambodia, northeastern India, Lao PDR, Myanmar, Nepal, and northern Philippines. In contrast, there is an increased chance of above-average rainfall in Bhutan, DPR Korea, some parts of northern and eastern India, southern Philippines, and southern Sri Lanka (Map 12).

Rainfall during April-June 2023 is likely to be slightly above the normal conditions (60-80 percent possibility of exceeding the median rainfall) in northern Cambodia, southern Lao PDR, southern Myanmar, and the Philippines. In contrast, northeastern India, northern Myanmar, and Sri Lanka are likely to experience below-average rainfall, at 30-40 percent possibility.

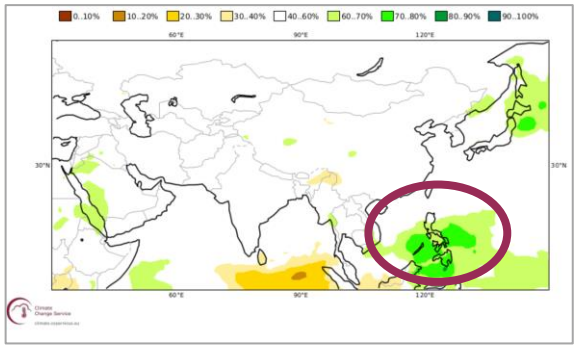
Rainfall is likely to be near average across major parts of zone 2, particularly in Bangladesh, Bhutan, DPR Korea, India, and Nepal (Map 13).

Air temperature during April-June 2023 is likely to be above the normal conditions across major parts of zone 2, particularly in some parts of southern DPR Korea, northeastern India, northern Myanmar, southern Philippines, and Sri Lanka (>80 percent possibility of exceeding the median temperature). In contrast, some parts of central India are likely to experience near average air temperature (Map 14).

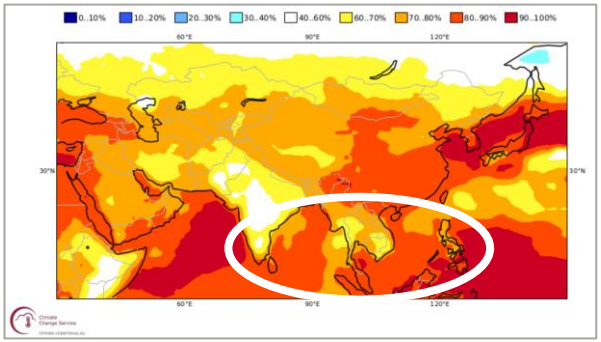
MAP 12: SHORT-TERM RAINFALL FORECAST AS A PERCENT OF AVERAGE, 1-10 APRIL 2023



MAP 13. LONG TERM RAINFALL FORECAST APR-JUN 2023, PRECIPITATION > MEDIAN, %



MAP 14. LONG TERM TEMPERATURE FORECAST APR-JUN 2023, 2m TEMPERATURE ABOVE MEDIAN, %



Map 13: C3S multi-system seasonal forecast probability (precipitation > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC AMJ 2023
Map 14: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC AMJ 2023

Zone 3

Fiji

Indonesia

Kiribati

Papua New Guinea

Timor-Leste

Tuvalu

Vanuatu

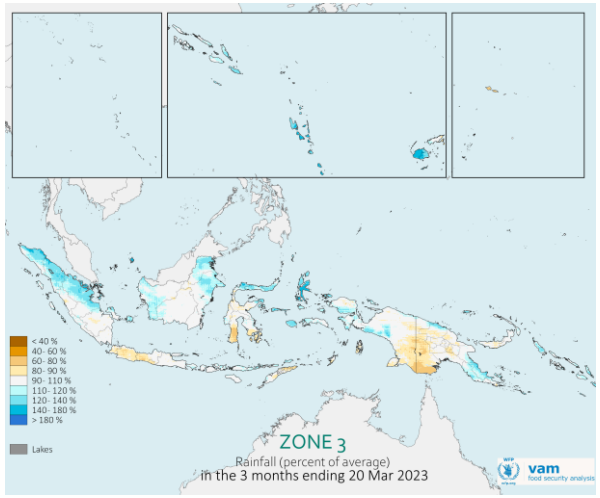
Zone 3: Rainfall Performance

Rainfall was wetter than average in countries across Zone 3

RAINFALL AS A PERCENT OF AVERAGE, DECEMBER 2022-MARCH 2023

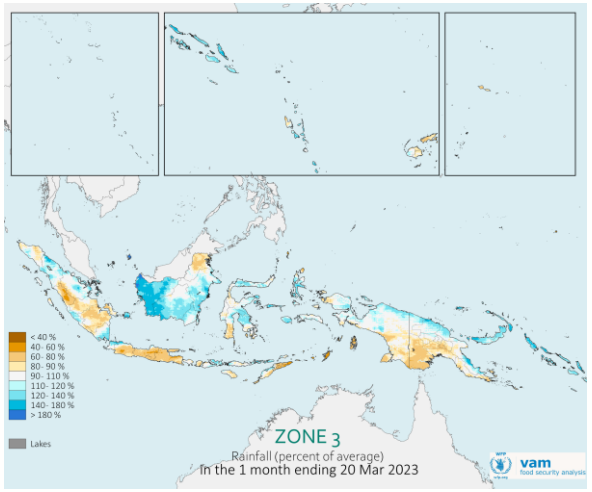
MAP 15: LAST THREE MONTHS

20 DEC 2022 — 20 MAR 2023



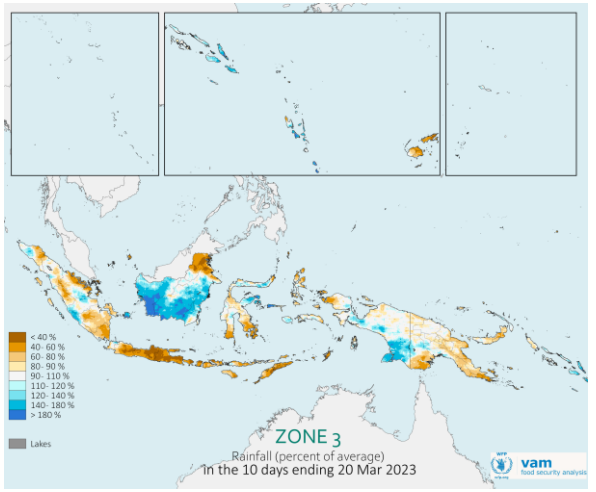
MAP 16: LAST MONTH

20 FEB 2023 - 20 MAR 2023



MAP 17: LAST TEN DAYS

11-20 MAR 2023



Rainfall during December 2022 – March 2023 was wetter than average across Fiji, Indonesia, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu (Map 15). In contrast, drier-than-average conditions were observed in some parts of Kiribati and Tuvalu.

During **20 February- 20 March 2023** (Map 16), above average rainfall (200-350 mm of average monthly rainfall) continued in Fiji, Indonesia, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu with high risks of floods in Indonesia and Vanuatu.

Wetter than average conditions continued across Fiji, major parts of Indonesia, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu during **11-20 March 2023** (Map 17). In contrast, drier-than-average conditions were observed in some parts of Kiribati and Tuvalu.

In **Indonesia**, heavy rains in March 2023 caused floods in south Sumatra and Lampung provinces of Sumatra Island and Serasan Island; about 23,759 people were affected and 50 houses damaged[24].

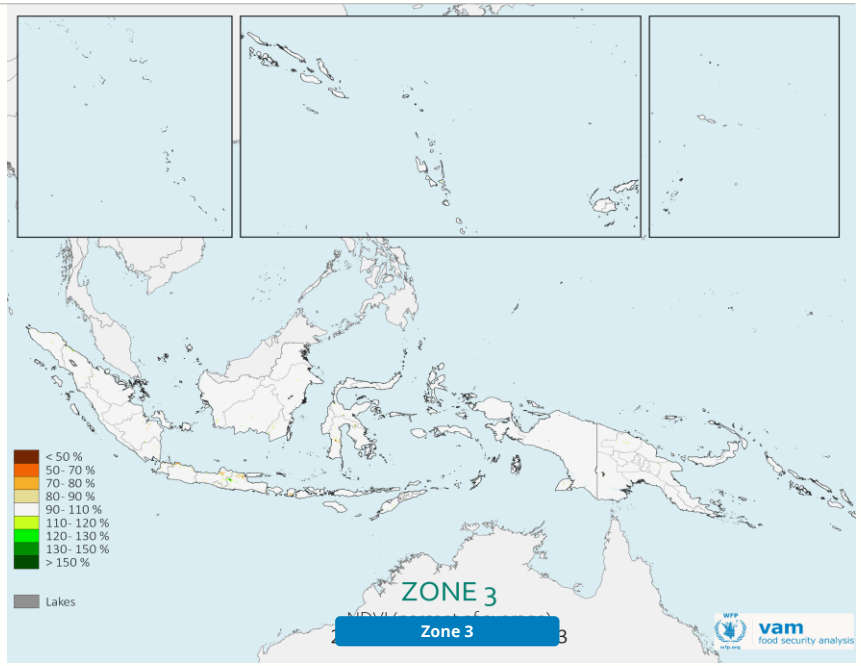
In **Vanuatu**, Tropical Cyclones Judy and Kevin in early March 2023 caused floods across the country; 80 percent of Vanuatu's population (251,346 people) were affected by the tropical cyclones, Tafea and Shefa provinces were the worst-affected[25].

Zone 3: Rainfall Vegetation and Crop Conditions

Near average vegetation conditions were observed in most parts of the Pacific Island Subregion between 26 February-14 March 2023. Only a few areas (central Java and southern Sulawesi) have below-average vegetation conditions due to heavy rains during November 2022-February 2023 which caused flash floods and damaged crops (Map 18).

This zone had an average vegetation index in recent weeks

MAP 18: NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 26 FEBRUARY-14 MARCH 2023



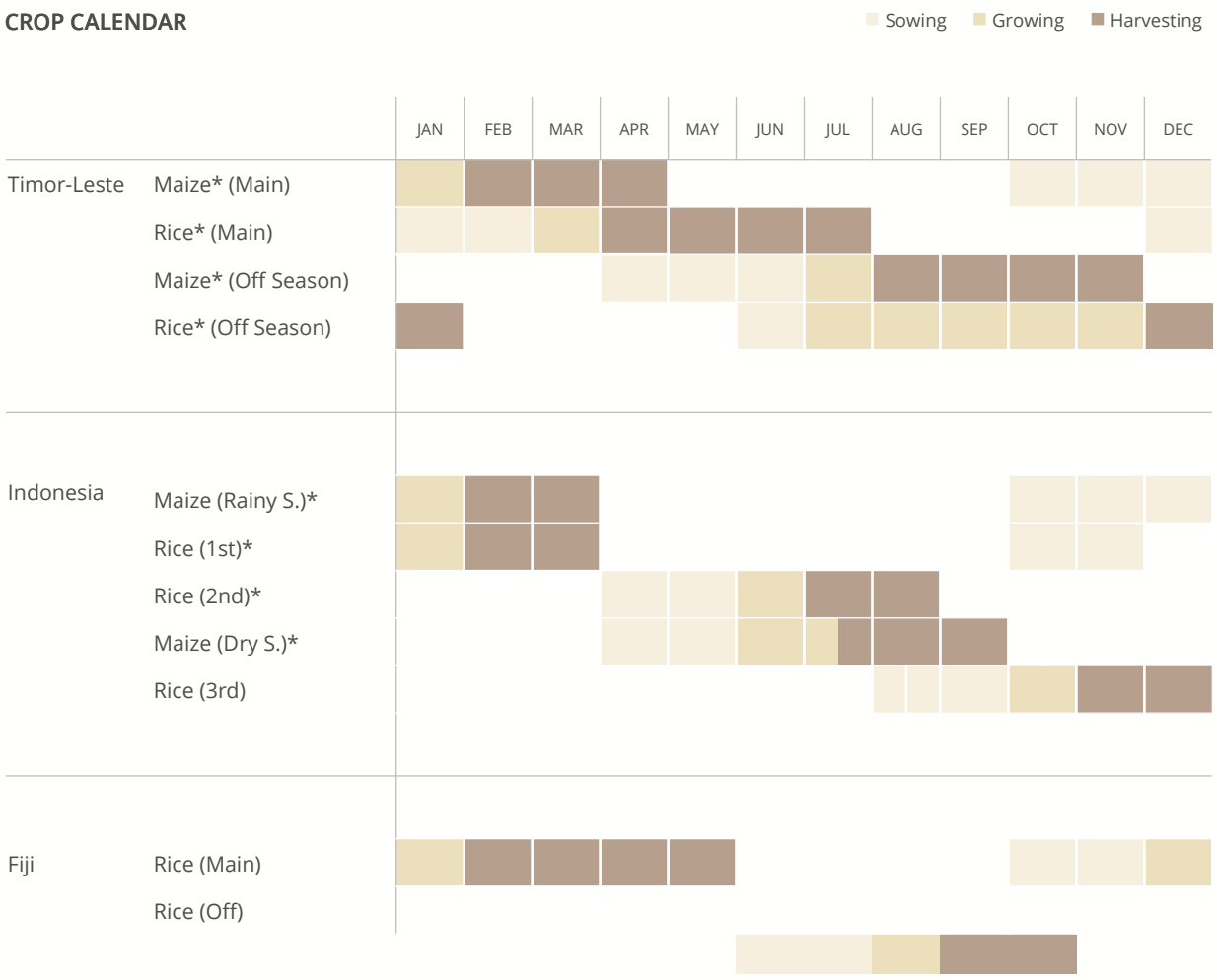
In **Fiji**, the planting of cane began in March 2023 under good weather conditions due to adequate water supply. The 2023 output of cane is forecast at 1.8 million tons, 38 percent above the ten-year average (1.3 million tons)[26].

In **Indonesia**, the sowing of wet season rice was finalized in March under favorable weather conditions with a total sown area of 6.5 million hectares, 3.2 percent higher than the total planted areas of the wet season in 2022 due to enough irrigation water and good weather conditions. Harvesting of earlier sown rice finalized in March 2023 under favorable weather conditions[27]. The 2022/23 rice production is expected at the five-year average level and 2021 level of 54.8 million tons of milled dry grain,

In **Papua New Guinea**, the growing of bananas, sweet potato, and taro in March 2023 continued under mixed weather conditions, and some parts of the southeastern region experienced adequate water supply due to above-average rainfall in February[28].

In **Timor-Leste,** the harvesting of main maize and growing of main season rice continued in March 2023 under good weather conditions. The 2022/23 maize and rice production is forecast at 163,000 tons, 15 percent higher than the five-year average (142,000)[29] due to the availability of farm inputs especially seeds from the government subsidy[30].

CROP CALENDAR

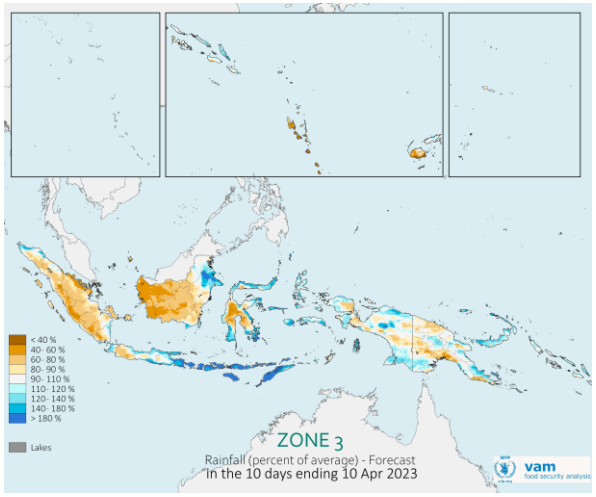


Source: FAO/GIEWS, WFP CFSAM, USDA. Periods are rounded to half-months.

Zone 3: Climate Outlook, April to June 2023

Rainfall is expected to vary greatly in different countries across zone 3 in the short-term

MAP 19: SHORT-TERM RAINFALL FORECAST AS A PERCENT OF AVERAGE, 1-10 APRIL 2023

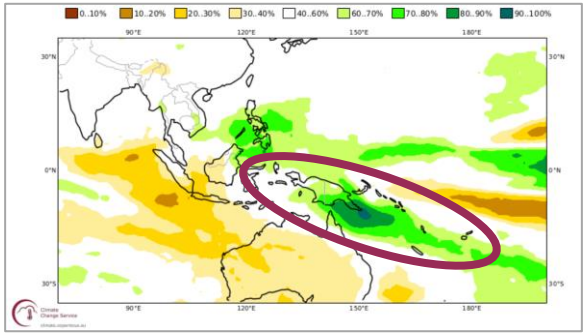


The short-term forecast during 1-10 April 2023 indicates that wetter than average conditions (150-200 mm of average monthly amount rainfall) are likely in Java of Indonesia and Timor-Leste. Light to moderate rainfall is expected across Fiji, major parts of Indonesia, Papua New Guinea, Solomon Islands, Vanuatu, and the Central Pacific Island States (Kiribati and Tuvalu) (Map 19).

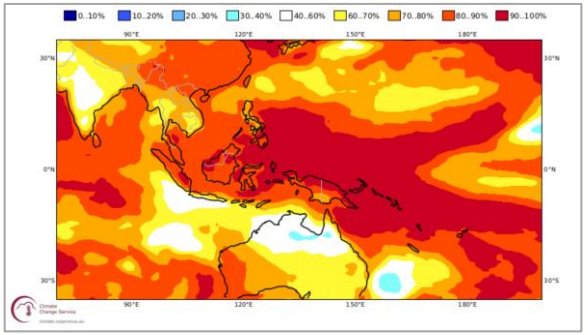
Rainfall during April-June 2023 shows above average rainfall conditions (70-90 percent possibility of exceeding the median rainfall average) in Fiji, southern Papua of Indonesia, southern Papua New Guinea, and Vanuatu. In contrast, some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), and the Central Pacific Island States (Kiribati and Tuvalu) are likely to experience below-average rainfall (Map 20).

Air temperature during April-June 2023 is likely to be higher than average temperature conditions across this zone (greater than 70 percent possibility of exceeding the median temperature) (Map 21).

MAP 20. LONG TERM RAINFALL FORECAST APR-JUN 2023, PRECIPITATION > MEDIAN, %



MAP 21. LONG TERM TEMPERATURE FORECAST APR-JUN 2023, 2m TEMPERATURE ABOVE MEDIAN, %



Map 20: C3S multi-system seasonal forecast probability (precipitation > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC AMJ 2023
Map 21: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC AMJ 2023

Areas of Concern

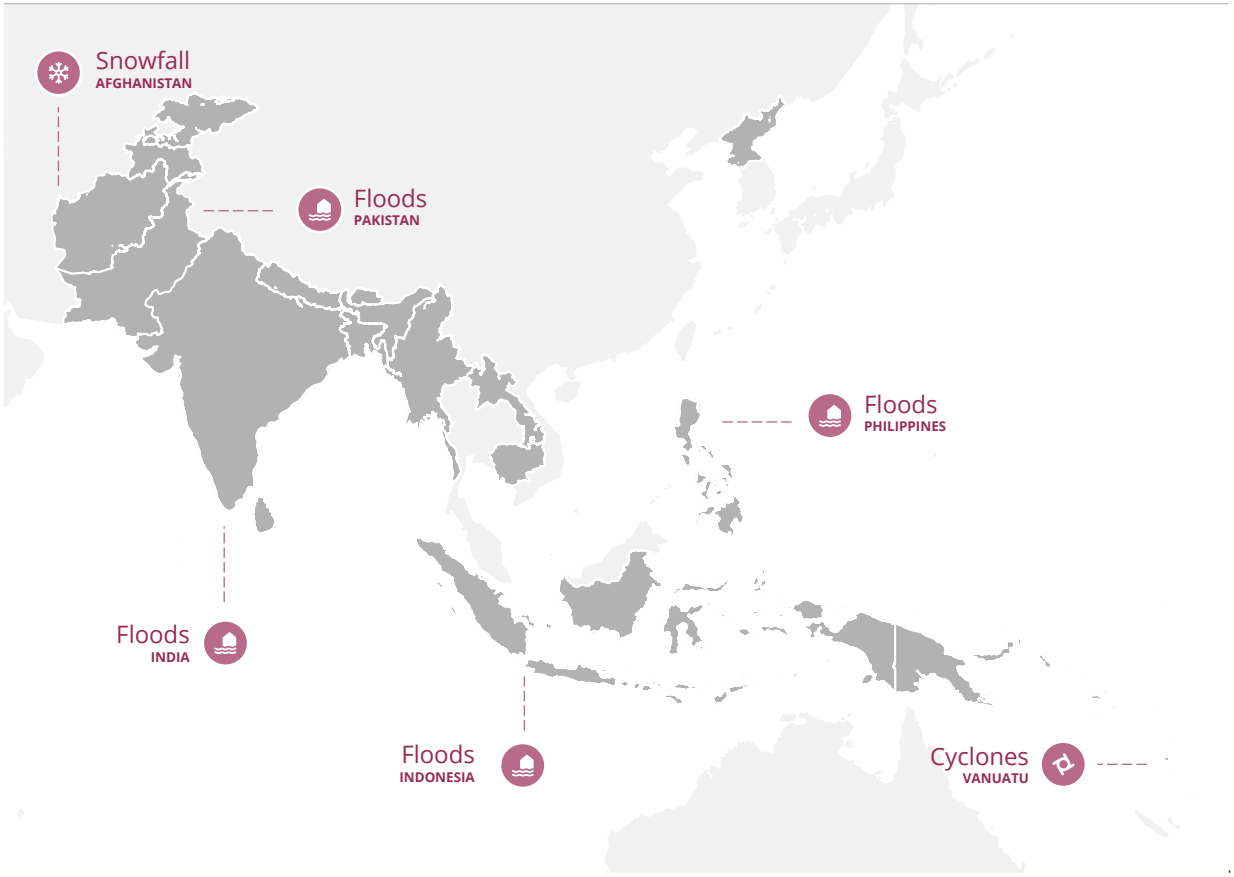
Climate related concerns

Potential drivers of Food Insecurity in March 2023

Rainfall Seasonal Patterns

Climate-related concerns

RECENT CLIMATE HAZARDS (MARCH 2023)



Afghanistan– Snowfalls (Mar 2023)
Snowfall and heavy rains killed at least three people and destroyed over 750 houses across nine provinces in different parts of the country[31].

India– Floods (Mar 2023)
Unseasonal rains and hailstorms affected thousands of people in many states (Maharashtra, Rajasthan, Punjab), over 18,000 hectares of farmlands (wheat, gram, vegetable) were damaged in Maharashtra[32].

Indonesia– Floods (Mar 2023)
Heavy rains caused floods in Sumatra and Serasan Island; about 23,759 people were affected [33].

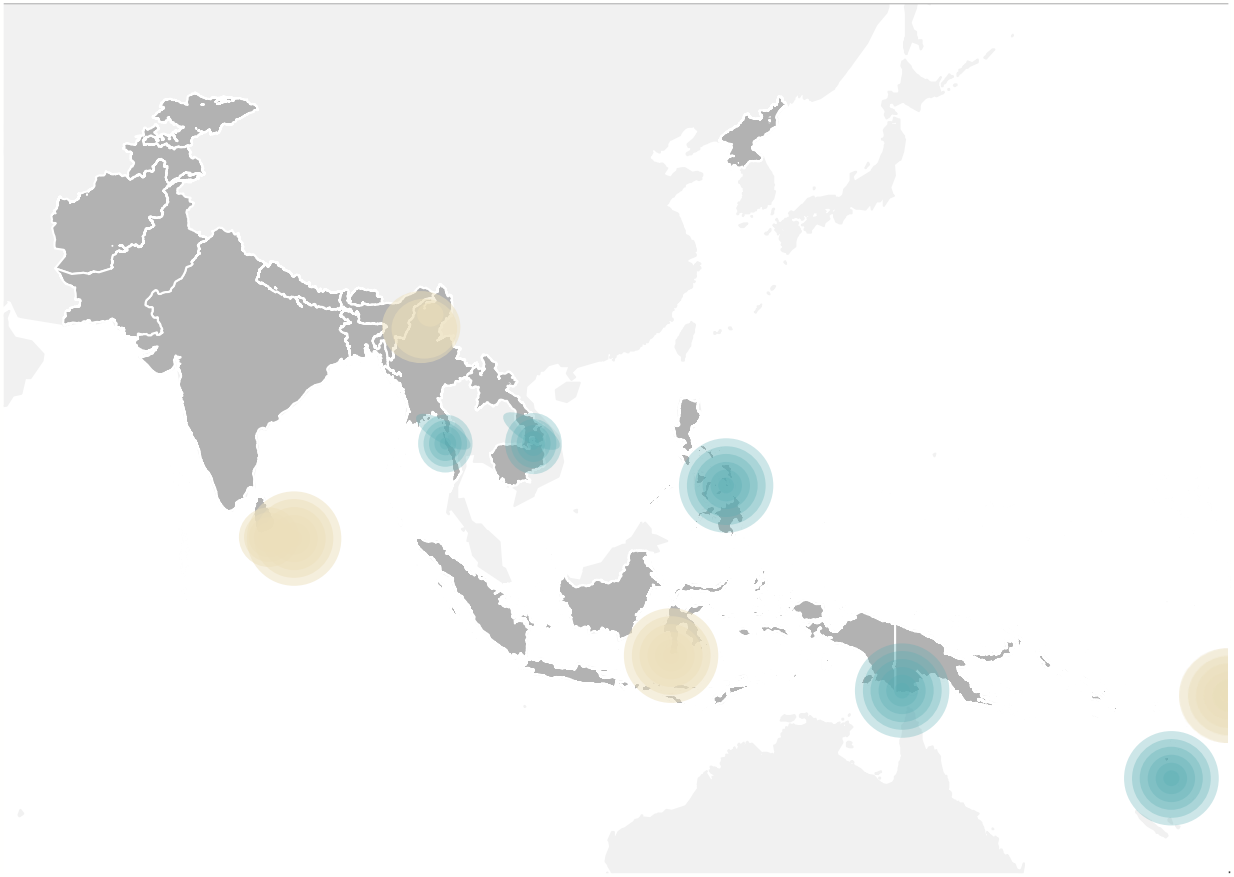
Pakistan– Floods (Jul 2022)
Flood water decreased in many flooded areas across the country. As of March 2023, some 1.8 million people remained exposed to or living close to flooded areas, which decreased from 4.5 million people in January[34].

Philippines – Floods (Mar 2023)
Heavy rains caused floods and landslides in Region six and Davao de Oro; over 6,900 people were affected and 2,500 people were displaced[35].

Vanuatu-Cyclones (Mar 2023)
Tropical Cyclones Judy and Kevin caused floods across the country, over 250,000 people were affected[36].

Climate-related concerns

SEASONAL OUTLOOK (APRIL-JUNE 2023)



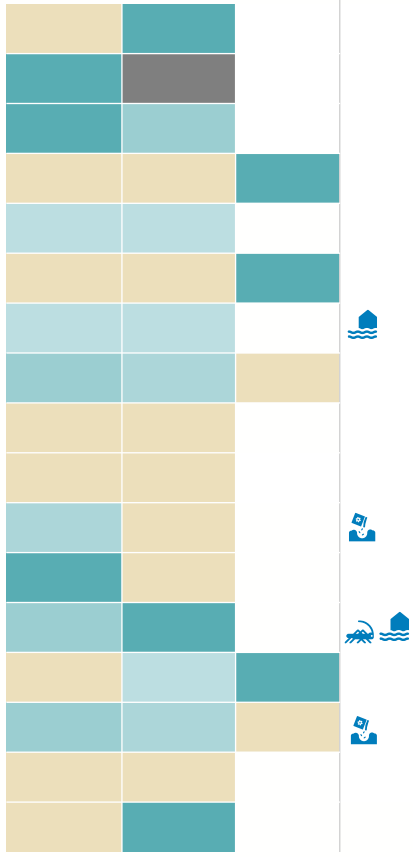
Wetter than normal rainfall: Wetter conditions are likely in some parts of northern Cambodia, Fiji, Papua of Indonesia, southern Lao PDR, southern Myanmar, the Philippines, southern Papua New Guinea, and Vanuatu.

Lower than normal rainfall: Drier conditions are projected in some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), northeastern India, northern Myanmar, Kiribati, Sri Lanka, and Tuvalu.

Cyclone activity: The La Niña condition in the Pacific Ocean has returned to ENSO-neutral state and the potential for the formation of tropical cyclones in the region is very low during 30 March -1 April[37]. In the Philippines, a low likelihood of tropical cyclone is forecast to form in the southern part during 29th March-11 April[38].

Graphics on this map are only for illustrative purposes, and do not represent any specific values.

Potential Drivers of Food Insecurity in March 2023



Country	Rainfall Performance (11-20 Mar 23)	Short-Term Forecast (1-10 Feb 23)	Long-Term Forecast (Apr-Jun23)	Projected Crop Production 2023	Conflict / Displacement	Inflation (%)	Inflation Date	Food Inflation (%)	Food Inflation Date	Currency Exchange (YoY, %, Mar)	Moderate or Severe Food Insecurity (%)
Afghanistan				W ↔		3 .6 ▼	Jan'23	3.2 ▼	Jan'23	1.1 ▼	46%[a]
Bangladesh				W ↔		8.8 ↔	Feb '23	8.1 ↔	Feb '23	-18.6 ↔	13%[b]
Bhutan				W/R ↔		4.3 ↔	Jan '23	1.5 ↔	Jan '23	-7.4 ▲	
Cambodia				R ↔		2.9 ▼	Dec'22	3.8 ▼	Dec'22	-0.1 ▲	6%[c]
DPR Korea				NA		NA		NA		NA	
Fiji				NA		1.5 ▼	Feb '23	3.2 ▼	Feb '23	-6.0 ▼	1.4%[d]
India				R ▲		6.4 ↔	Feb '23	6.0 ↔	Feb '23	-7.4 ▲	
Indonesia				R ↔		5.0 ▼	Mar '23	6.1 ▼	Mar '23	-6.3 ▼	
Kyrgyz Rep				W ↔		16.2 ▲	Feb '23	18.3 ▲	Feb '23	9.1 ▲	15%[e]
Laos				R ▲		41.3 ↔	Feb '23	49.3 ↔	Feb '23	-31.8 ↔	12%[f]
Myanmar				R ▼		19.6 ↔	Jul '22	18.4 ▲	Jul '22	-15.5 ↔	27%[g]
Nepal				W ↔		7.8 ▲	Feb '23	6.2 ▲	Feb '23	-7.5 ▲	
Pakistan				R ▼		35.4 ▲	Mar'23	47.2 ↔	Mar'23	-35.7 ↔	42%[h]
Philippines				R ↔		8.6 ↔	Feb '23	10.8 ↔	Feb '23	-4.9 ▲	11%[i]
Sri Lanka				R ▼		50.3 ↔	Mar'23	47.6 ▼	Mar '23	-22.6 ▲	32%[j]
Tajikistan				W ↔		4.5 ↔	Feb '23	5.5 ↔	Feb '23	14.4 ▲	18%[k]
Timor Leste				R ▲		6.7 ▼	Nov '22	7.2 ▼	Nov'22	NA	22%[l]

LEGEND

RAIN PERFORMANCE

- Rainfall>140percent = heavy rainfall
- Rainfall 110-140percent = slight to moderate rainfall
- Rainfall 90-110percent = normal condition
- Rainfall 60-90percent = slight to moderate drought
- Rainfall < 60percent = severe drought

Abnormally high/low amounts of rain can affect crop production and lead to food insecurity.

CROP PRODUCTION

- Severe drought's effect on crop production
- Extensive floods effect on crop production
- High prices of agricultural inputs effect on crop production
- Locust outbreaks effect on crop production
- ▲ 2022/23 outputs of rice/wheat crops increased by more than 5 percent *from the five-year average level (2017-2021)*
- ▼ 2022/23 outputs of rice/wheat crops decreased by more than 5 percent
- ↔ 2022/23 outputs change of rice/wheat crops between -5 percent to 5 percent

W Wheat **R** Rice

INFLATION/FOOD INFLATION (Month-on-Month)

- ▲ (Food) inflation rate change increased by more than 5 percent
- ▼ (Food) inflation rate change decreased by lower than 5 percent
- ↔ (Food) inflation rate change between -5 percent to 5 percent

CURRENCY EXCHANGE (Year-on-Year)

- ▲ Exchange rate change increased by more than 5 percent
- ▼ Exchange rate change decreased by more than 5 percent
- ↔ Exchange rate change between -5 percent to 5 percent

CONFLICT AND DISPLACEMENT

- Conflict
- Displacement

NA : updated data not available

[a] **Afghanistan**'s overall acute food insecurity index is determined with the forthcoming IPC, which estimates some 20 million people to be acutely food insecure

[b] **Bangladesh** Food Security Monitoring (mVAM): January 2023

[c] **Cambodia** Food Security and Nutrition Assessment Flood Prone Areas: October 2022

[d] **Fiji** Food Security Analysis Round Thirteen: September 2022

[e] **Kyrgyz Republic** Food Security Monitoring Update: December 2022

[f] **Lao PDR** Food Security Monitoring: February 2023

[g] **Myanmar** DIEM Data in emergencies monitoring brief round 4: January 2023

[h] **Pakistan** Situation report 5 October 2022. Food insecure people in IPC assessed areas and flood affected areas (it is not a national value)

[i] **Philippines** Food Security Monitoring: October 2022

[j] **Sri Lanka** Food Security Monitoring: January 2022

[k] **Tajikistan** Quarterly Household Food Security and Market Update July-September 2022: October 2022

[l] **Timor Leste** IPC January 2023

RBB Countries Rainfall Seasonal Pattern

Year		2023																2022																		Average annual rainfall (mm)	Accumulative rainfall variation by March 2023(%)	Accumulative rainfall variation by March 2023(mm)
Month		JAN			FEB			MAR			APR			MAY			JUN			JUL			AUG			SEP			OCT			NOV			DEC					
Dekad (ten-day rainfall period)		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
Zone 1	Afghanistan																																					231.4	-34.66	-31%
	Kyrgyz Republic																																					394.5	-24.93	-42%
	Pakistan																																					227.0	-12.95	-25%
	Tajikistan																																					323.3	-13.22	-23%
Zone 2	Bangladesh																																					2,330.7	19.36	50%
	Bhutan																																					893.5	8.02	33%
	Cambodia																																					1,964.8	-15.93	-37%
	DPR Korea																																					941.9	-1.59	-5%
	India																																					1,098.9	2.86	10%
	Lao PDR																																					1,838.2	-8.00	-16%
	Myanmar																																					2,090.0	1.42	5%
	Nepal																																					1,384.7	-19.65	-31%
	Philippines																																					2,251.6	183.407	51%
	Sri Lanka																																					1,792.5	25.204	9%
Zone 3	Fiji																																					2,820.7	132.722	16%
	Indonesia																																					2,685.6	44.616	6%
	Timor-Leste																																					1,749.4	-145.387	-20%

Data source: WFP Dataviz Seasonal Explore

- **Very heavy rains, heavy rainfall period.** 10 daily rainfall > 3 times the average 10 daily contribution to annual rainfall.
- **Heavy rains; core rainfall period.** 10 daily rainfall > 2 times the average 10 daily contribution to annual rainfall.
- **Moderate rains; rainfall season.** 10 daily rainfall > 1 to 2 times the average 10 daily contribution to annual rainfall.
- **Light rains; starting/residual rainfall season**. 10 daily rainfall > 0.5 to 1 time the average 10 daily contribution to annual rainfall.
- **Dry season**; 10 daily rainfall <0.5 times the average 10 daily contribution to annual rainfall.

Rainfall > 100 mm

Sources

Rainfall time series for trend analysis and seasonal drought monitoring
CHIRPS (Climate Hazards Group InfraRed Precipitation with Station data) gridded rainfall dataset produced by the Climate Hazards Group at the University of California, Santa Barbara: (http://chg.geog.ucsb.edu/data/chirps/)

NDVI
MODIS NDVI CMG data made available by NOAA-NASA. (http://reverb.earthdata.nasa.gov/)

Seasonal Climate Forecast and ENSO Forecast
International Research Institute for Climate and Society (https://iri.columbia.edu/)

Crop monitoring
GEOGLAM Crop Monitor (https://cropmonitor.org/)

(Food) Inflation rate and currency exchange
Trading Economics (https://tradingeconomics.com)

Long-term precipitation and temperature forecasts
The Copernicus Climate Change Service (https://climate.copernicus.eu/charts/packages/c3s_seasonal/)

For more detailed information on seasonal forecast, please visit Seasonal: Rainfall and Vegetation: Visualizations - Dataviz | WFP - VAM

DISCLAIMERS: All climate content within this bulletin is based upon the most current available remote sensing data.
As the climate phenomena is a dynamic situation, the current realities may differ from what is depicted in this document.

Countries in the region have been classified into three zones according their geographical location (latitude, longitude) and climate (rainfall and temperature). This classification do not correspond to any official subregions or categories

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