Seasonal Monitor

ASIA-PACIFIC, APRIL 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

Table of Contents

Climate Overview

Areas of Concern

1. Climate Overview

Summary

Hazards

In April 2023, heavy rains caused **floods** in Afghanistan, Cambodia, India, Indonesia, Pakistan and the Philippines. A large **tornado** killed eight people and injured 128 people in Naypyidaw province of Myanmar with 232 houses destroyed. **Heatwaves** affected people across south and southeast Asia.

January-April 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 some parts of central DPR Korea, eastern India, central and southern Philippines and eastern Sri Lanka. Harvesting of dry season rice is ongoing under favourable weather conditions.

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 May 2023)

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

Wetter than average conditions are forecast in major parts of Afghanistan, and some parts of India, Pakistan, Indonesia, northern Nepal, southern Philippines, Sri Lanka, Solomon Islands, and Timor-Leste.

Seasonal Outlook (May-July 2023)

Higher than normal rainfall is likely in some parts of Afghanistan, Papua of Indonesia, northern Pakistan, Papua New Guinea, central Philippines, southern Sri Lanka, and the Solomon Islands.

Drier conditions are projected in Bangladesh, some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), southern Pakistan, Kiribati, and Tuvalu. Higher than normal temperatures are likely across major parts of south and southeast Asia, and major parts of the Pacific Islands States due to the development of El Niño conditions.

Estimated crop production (2023)

2023 agricultural prospects are generally favourable, except for Bhutan, Myanmar, Pakistan, and Sri Lanka. In Bhutan, wheat outputs are anticipated to be well below the five-year averages, as the limited workforce in cereal production and higher profit of vegetable production caused land use conversion from wheat to vegetables. Rice outputs are expected to be lower than the five-year average in Sri Lanka and Myanmar due to a shortage of agricultural inputs caused reductions in the area planted and yield, while the severe floods in 2022 damaged rice crops in Pakistan.

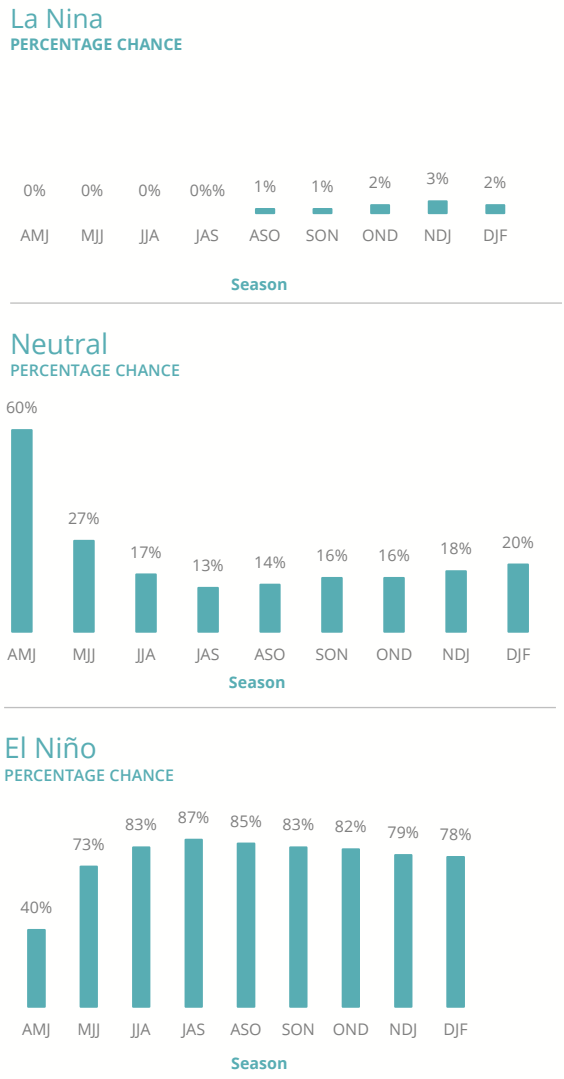
La Niña/El Niño Outlook

El Niño is anticipated during May-July 2023 (73 percent possibility), and El Niño is likely to continue during August-October 2023 (85 percent possibility) (Figure 1)[1]. El Niño conditions contribute to drier conditions over South and Southeast Asia during the monsoon season (July-September) and wetter conditions in some parts of the Philippines and the western coastal region of Southeast Asia.

There is an increased chance of below-average rainfall during May-July 2023 in Bangladesh, some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), southern Pakistan, Kiribati, and Tuvalu. During the forecast period, rainfall is likely to be above average (60-90 percent possibility of exceeding median rainfall) in central Afghanistan, southern Papua of Indonesia, northern Pakistan, southern and eastern Papua New Guinea, central Philippines, southern Sri Lanka, and southern Solomon Islands. Rainfall is likely to be near normal conditions across Afghanistan, Bhutan, Cambodia, DPR Korea, major parts of India, Kyrgyz Republic, Lao PDR, major parts of Myanmar, Nepal, Pakistan, and Tajikistan [2].

Sea surface temperatures in April 2023 continued warming in the central to eastern Pacific[3] . Warmer than normal sea surface temperatures are likely over most parts of the eastern equatorial Pacific Ocean during May to July.

FIGURE 1: IRI/CPC PROBABILISTIC ENSO OUTLOOK (RELEASED 19 APRIL 2023)



[1] Source: IRI Climate Forecasts

Zone 1

Afghanistan

Kyrgyz Republic

Pakistan

Tajikistan

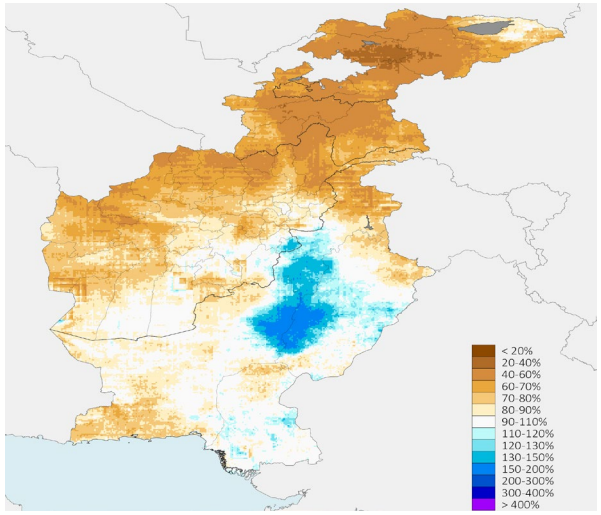
Zone 1: Rainfall Performance

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

RAINFALL AS A PERCENT OF AVERAGE, JANUARY-APRIL 2023

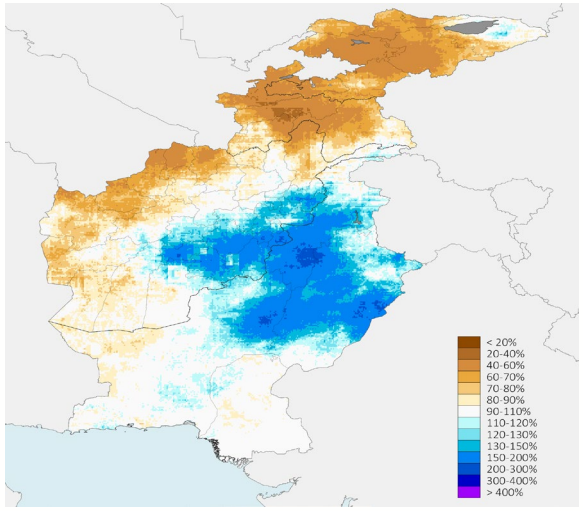
MAP 1: LAST THREE MONTHS

20 JAN 2023 — 20 APR 2023



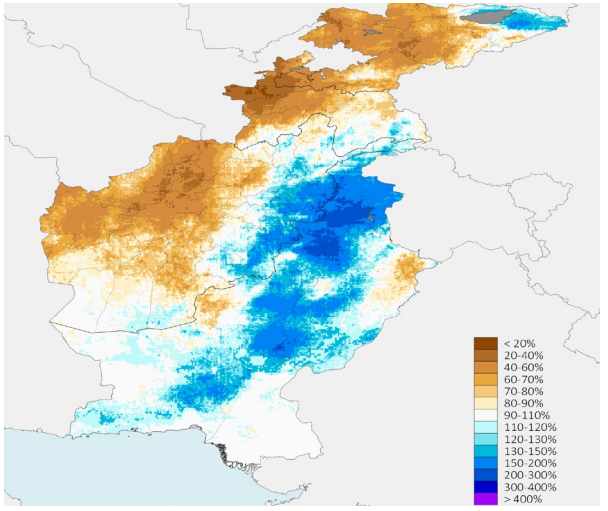
MAP 2: LAST MONTH

20 MAR 2023 - 20 APR 2023



MAP 3: LAST TEN DAYS

11-20 APR 2023



Between **January-April 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 March-20 April 2023**, drier than average conditions continued in major parts of Afghanistan, the Kyrgyz Republic and Tajikistan, but light rainfall (100-250 mm of average monthly rainfall) was observed across northeastern Afghanistan and northwestern Pakistan (Map 2). In the last ten-day rainfall period, **11-20 April 2023**, light rainfall (80-120 mm) was observed in some parts of northeastern Afghanistan and northwestern Pakistan (Map 3).

In **Afghanistan**, heavy rains and flash floods in early April 2023 killed one person and over 10 people were injured in the northeastern part of the country, particularly in Takhar province, with several houses and thousands of acres of farmlands damaged [4].

In **Pakistan**, heavy rains in the first week of April 2023 caused floods in the northwestern part of the country. Over 5 people died and 135 houses were damaged in Khyber Pakhtunkhwa province[5]. There is an increasing breeding of locusts on the southwest coast of Baluchistan Province during the spring season (April-May); these could affect the growth of winter barley and wheat[6].

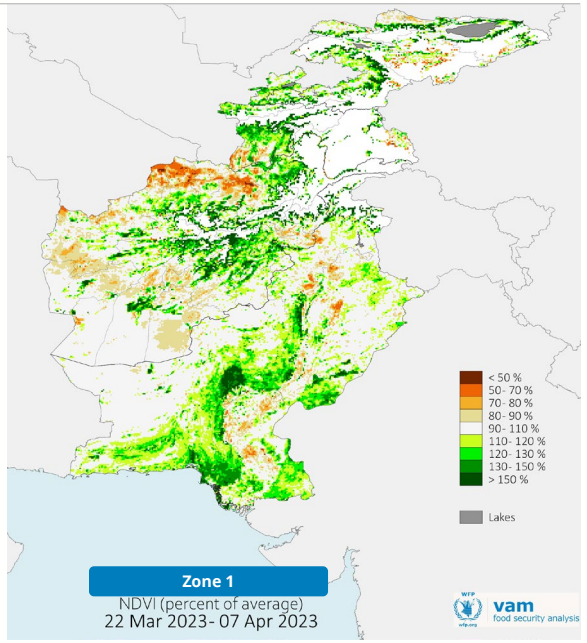
Zone 1: Vegetation and Crop Conditions

An above-average vegetation index for 22 March-7 April 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 northern and western Afghanistan, eastern Kyrgyz Republic, and eastern Pakistan due to below-average rainfall (Map 4).

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

MAP 4: **NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 22 MARCH – 7 APRIL 2023**



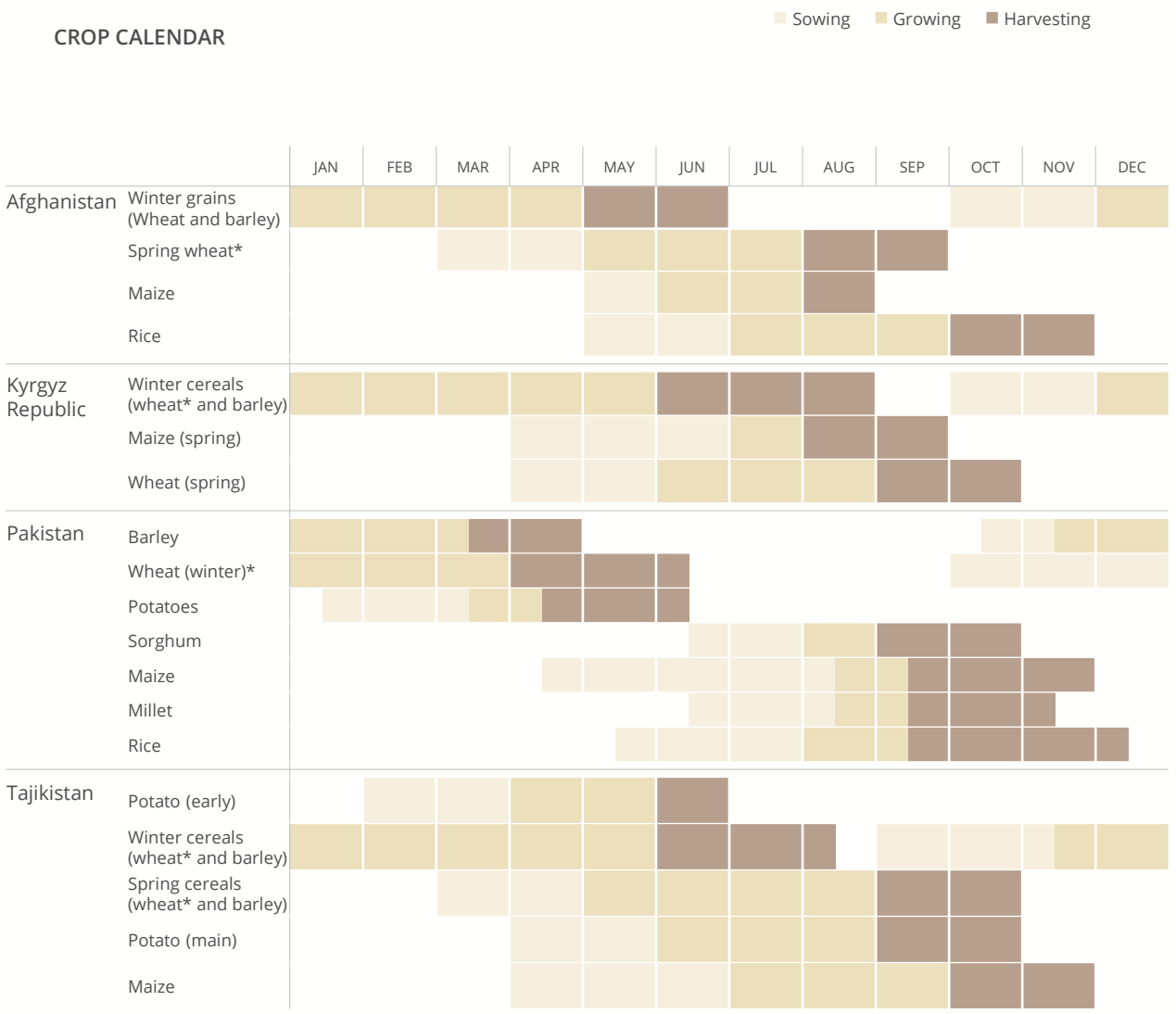
In **Afghanistan**, winter wheat and barley grew in April 2023 under mixed weather conditions. Sowing of spring wheat continued in April under light rainfall and below-average snow water volume across the country[7]. The 2022/23 output of wheat is expected to be at the five-year average of 4.5 million tons, while the 2022/23 output of barley is expected to increase by 37 percent from the five-year average for 2017-2021[8]. The 2022/23 production deficit of wheat and wheat flour is forecast at 11 percent, and the 2022/23 import requirements of wheat and wheat flour are forecast at 3.4 million tons and 3 million tons, 1 percent higher than the five-year average level for 2017-2021.

In the **Kyrgyz Republic**, the growing of winter wheat and barley crops continued in April 2023 under mixed weather conditions. Planting of spring wheat continued in April. The 2022/23 output of barley is expected to be 7 percent higher than the five-year average for 2017-2021 due to large planting, while the 2022/23 output of wheat is expected to be at the five-year average of 570,000 tons[9].

In **Pakistan**, the growing of winter wheat and barley continued in April 2023, while dry weather conditions were observed in most parts of the country[10]. The output of 2022/23 rice is expected to decrease by 17 percent from the five-year average due to the lingering impacts of extensive flooding in 2022, while the output of 2022/23 wheat is expected to increase by 2.5 percent from the five-year average for 2017-2021[11]. There is a low risk of locust infestations during growing and harvesting periods[12].

In **Tajikistan**, the growing of winter wheat and barley continued in April 2023 under mixed weather conditions. Spring wheat planting is underway in April, with concerns of abnormal dryness across the country[13]. The 2022/23 wheat and barley outputs are forecast at the five-year average (2017-2021) of 820,000 tons and 135,000 tons[14].

CROP CALENDAR

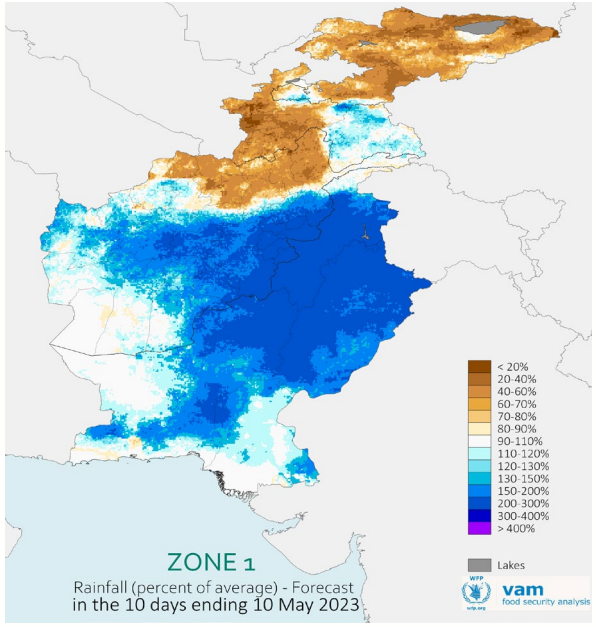


Source: FAO/GIEWS, FEWSNET. Periods are rounded to half-months.

Zone 1: Climate Outlook, May to July 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 MAY 2023

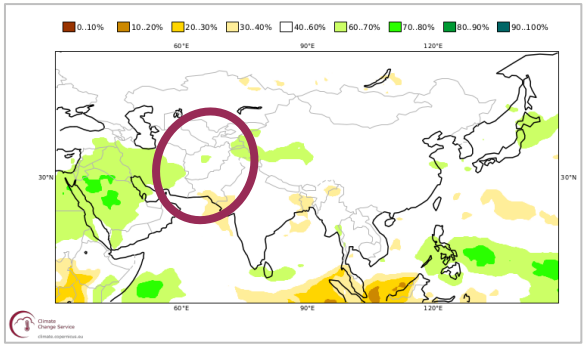


The short-term forecast for 1-10 May 2023 (Map 5) shows below-average rainfall across the Kyrgyz Republic and Tajikistan. In contrast, it shows higher than-average rainfall in major parts of Afghanistan and Pakistan.

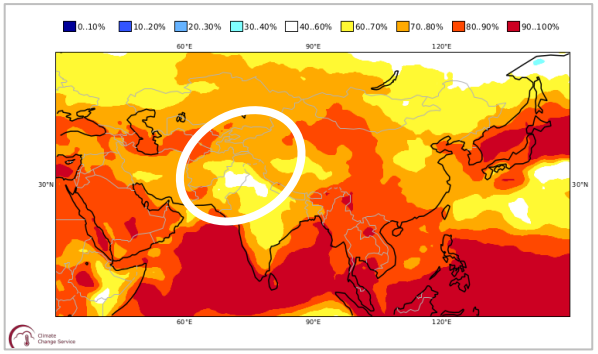
Rainfall during May-July 2023 (Map 6) is likely to be near average across Afghanistan, the Kyrgyz Republic, Pakistan, and Tajikistan. In contrast, some parts of central Afghanistan and northern Pakistan are likely to experience slightly above-average rainfall (60-70 percent possibility of exceeding the median rainfall) and slightly below-average rainfall is likely in some parts of southern Pakistan.

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 central Pakistan (Map 7).

MAP 6. LONG TERM RAINFALL FORECAST MAY-JUL 2023, PRECIPITATION > MEDIAN, %.



MAP 7. LONG TERM TEMPERATURE FORECAST MAY-JUL 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 MJJ 2023
Map 7: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC MJJ 2023

Zone 2

Bangladesh

Bhutan

Cambodia

DPR Korea

India

Lao PDR

Myanmar

Nepal

Philippines

Sri Lanka

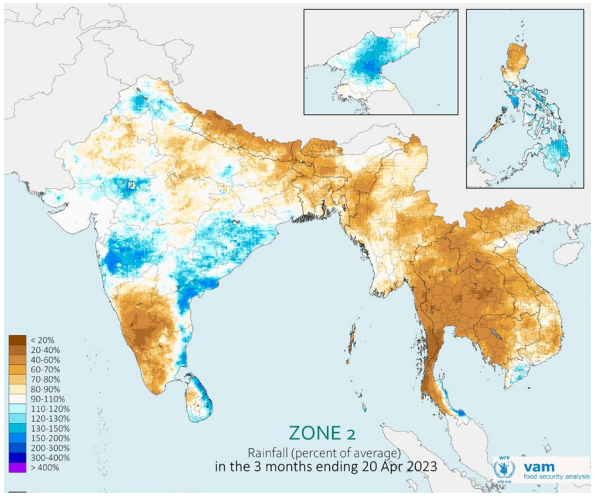
Zone 2: Rainfall Performance

Rainfall varied greatly in different countries across Zone 2

RAINFALL AS A PERCENT OF AVERAGE, JANUARY-APRIL 2023

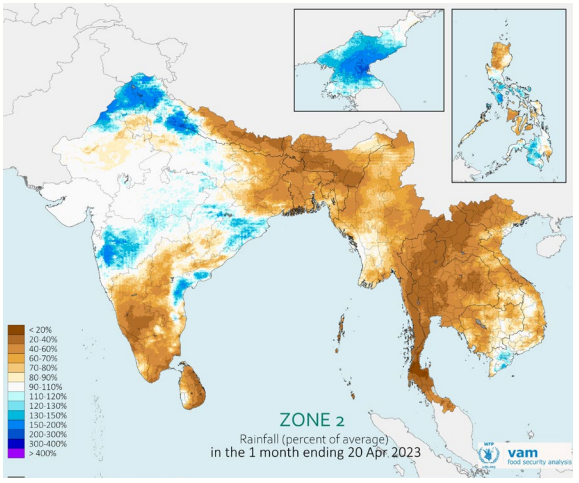
MAP 8: LAST THREE MONTHS

20 JAN 2023 — 20 APR 2023



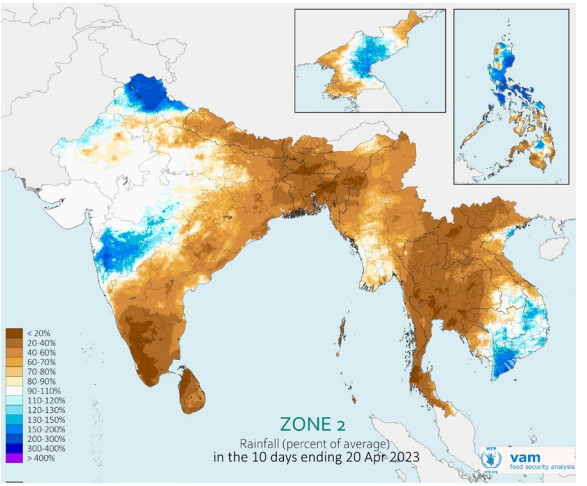
MAP 9: LAST MONTH

20 MAR 2023 - 20 APR 2023



MAP 10: LAST TEN DAYS

11-20 APR 2023



Drier than average conditions during January-April 2023 (Map 8) were observed across major parts of zone 2 with less than 50 mm of average monthly rainfall, while rainfall was light to moderate rainfall (>150 mm of average monthly rainfall) in some parts of central DPR Korea, eastern India, central and southern Philippines, and eastern Sri Lanka.

Drier than average conditions continued **during 20 March-20 April 2023** in major parts of zone 2, while light rainfall was observed in DPR Korea, northwestern and eastern India, central and southern Philippines, and some parts of western Sri Lanka (Map 9).

Above average rainfall (150-300 mm of average monthly rainfall) during **11-20 April 2023** was observed in northern and central Philippines, and light rainfall was observed in some parts of eastern Cambodia, central DPR Korea, and central and northwestern India. (Map 10). In April, a severe heatwave was observed across south and southeast Asia, particularly in **Bangladesh and India;** the temperature soared above 40 C causing deaths, and negatively affecting rice yields.

In **Cambodia**, heavy rains and thunderstorms on 14 April 2023 affected over 14,000 people, with more than 2,800 houses damaged across 24 provinces[15].

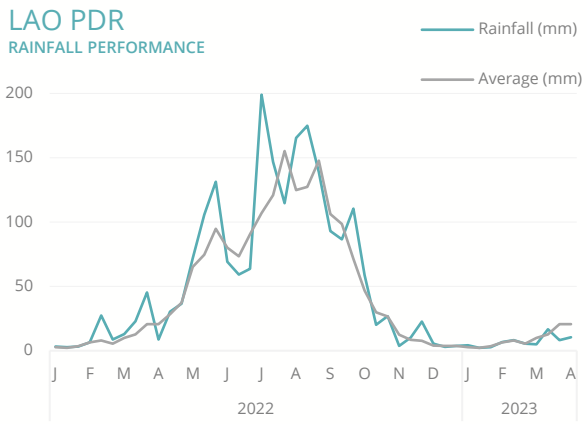
In **India**, unseasonal rains and hailstorms in the first week of April 2023 have destroyed 42,000 hectares of farmlands (wheat, soyabean, sorghum, vegetables) in Maharashtra Province[16]. In Assam province, rains and severe storms in the third week of April killed two people and over 41,000 people were affected [17].

In **Myanmar**, a large tornado on 21 April 2023 killed 8 people, with 128 people injured and 232 houses damaged in Naypyidaw, in the central parts of the country[18].

In the **Philippines**, a tropical depression from 9 -13 April 2023 caused flash floods across several regions in the central and southern parts of the country (Calabarzon, Mimaropa, Regions V and XI). As of 23 April, over 136,000 people (37,814 households) were affected [19].

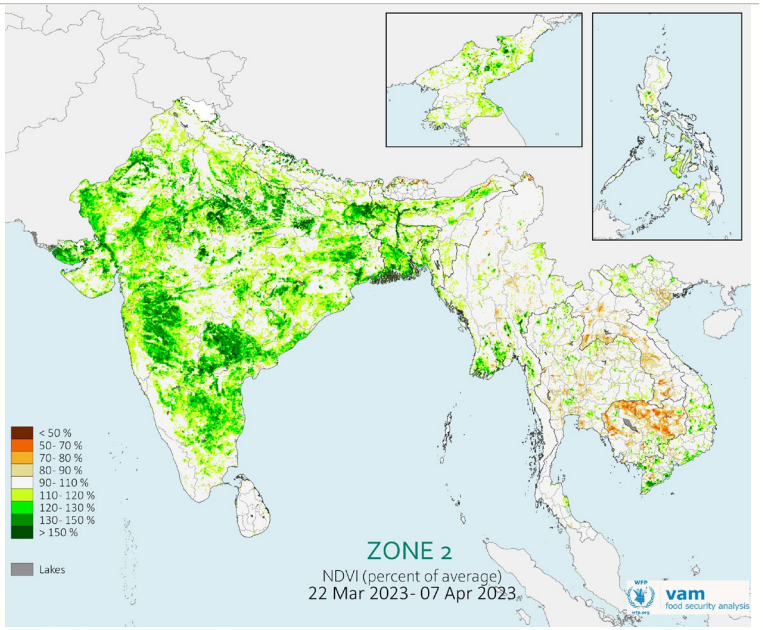
Zone 2: Vegetation and Crop Conditions

An above-average vegetation index for 22 March - 7 April 2023 was observed in major parts of Bangladesh, central DPR Korea, India, northern Nepal, and northwestern Myanmar due to above-average rainfall in the last three months (January-March 2023). In contrast, below-average vegetation continued in some parts of northern Bhutan, Cambodia, central Myanmar, and Lao PDR due to below-average rainfall during the dry season (October-April), above-average temperature, and the end of the growing season (Map 11).



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

MAP 11: NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 22 MARCH – 7 APRIL 2023

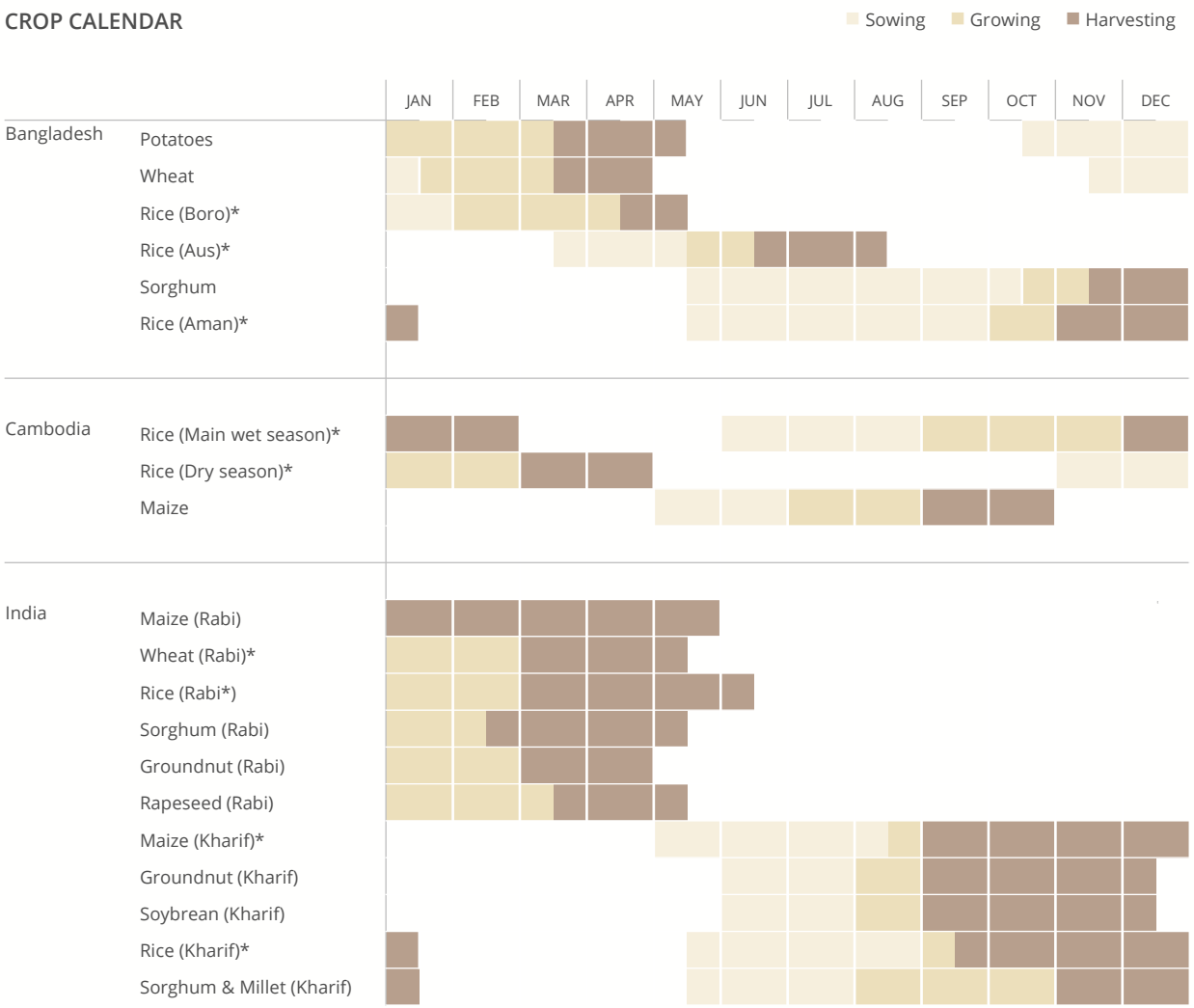


In **Bangladesh**, the harvesting of Boro season crops (rice, wheat, potato) in April 2023 continued under heat wave conditions. The government advises farmers to ensure sufficient irrigation to prevent heat shock to their plants. The 2022/23 output of rice (36.4 million tons) is expected at 4.5 percent higher than the five-year average for 2017-2021 [20]. The 2022/23 main cereal import requirements are forecast at 800,000 tons for rice and 4.8 million tons for wheat – 14 percent and 25 percent lower than the four-year average for 2018-2021.

In **Cambodia**, the harvesting of dry-season rice was almost finalized in April 2023, and the yield is estimated at 4.7 tons per hectare which is higher than the three-year average for 2020-2022 (3.8 tons per hectare)[22]. The total 2022/23 output of rice is estimated at 5.9 million tons, 3.9 percent higher than the five-year average for 2017-2021.

In **India**, harvesting of Rabi crops (rice, wheat, maize, sorghum, groundnut, rapeseed) continued in April 2023 under drier-than average conditions. The 2022/23 output of rice (132 million tons) and maize (34.6 million tons) is expected at10 percent and 15 percent higher than the five-year average for 2017-2021 (120.4 million tons) [23].

CROP CALENDAR



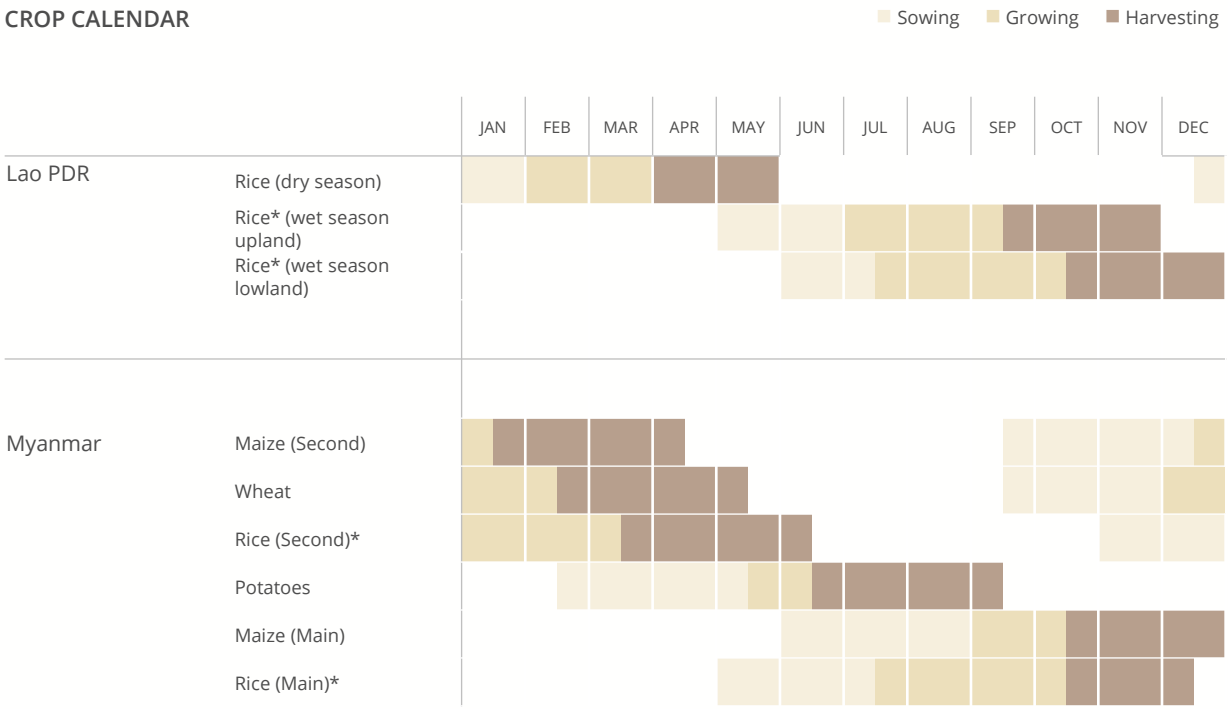
Source: FAO/GIEWS, WFP CFSAM. Periods are rounded to half-months.

In **Lao PDR**, the harvesting of dry-season rice continued in April 2023 under unusually high-temperature conditions, and the yield is estimated at 4.5 tons per hectare which is lower than the five-year average for 2017-2021 (4.8 tons per hectare)[23]. The total 2022/23 output of rice is estimated at 1.95 million tons, 7 percent higher than the five-year average for 2017-2021.

In **Myanmar**, the harvesting of dry-season rice continued in April 2023 under unusually high-temperature conditions. The yield of dry-season rice is estimated at 4.98 tons per hectare, higher than the five-year average for 2017-2021 (4.8 tons) [24]. The total 2022/23 output of rice is estimated at 12.5 million tons, 2.3 percent lower than the five-year average for 2017-2021 due to a shortage of chemical fertilizers with high prices.

In **Bhutan**, land preparation and rice sowing in April 2023 continued under good weather conditions. The 2022/23 barley output (1 thousand tons) is estimated at a five-year average level, while the 2022/23 output of wheat (1,000 tons) is estimated at 50 percent lower than the five-year average level for 2017-2021 due to a reduction in wheat production caused by a declining workforce in cereal production and higher profit of vegetable production [25].

CROP CALENDAR



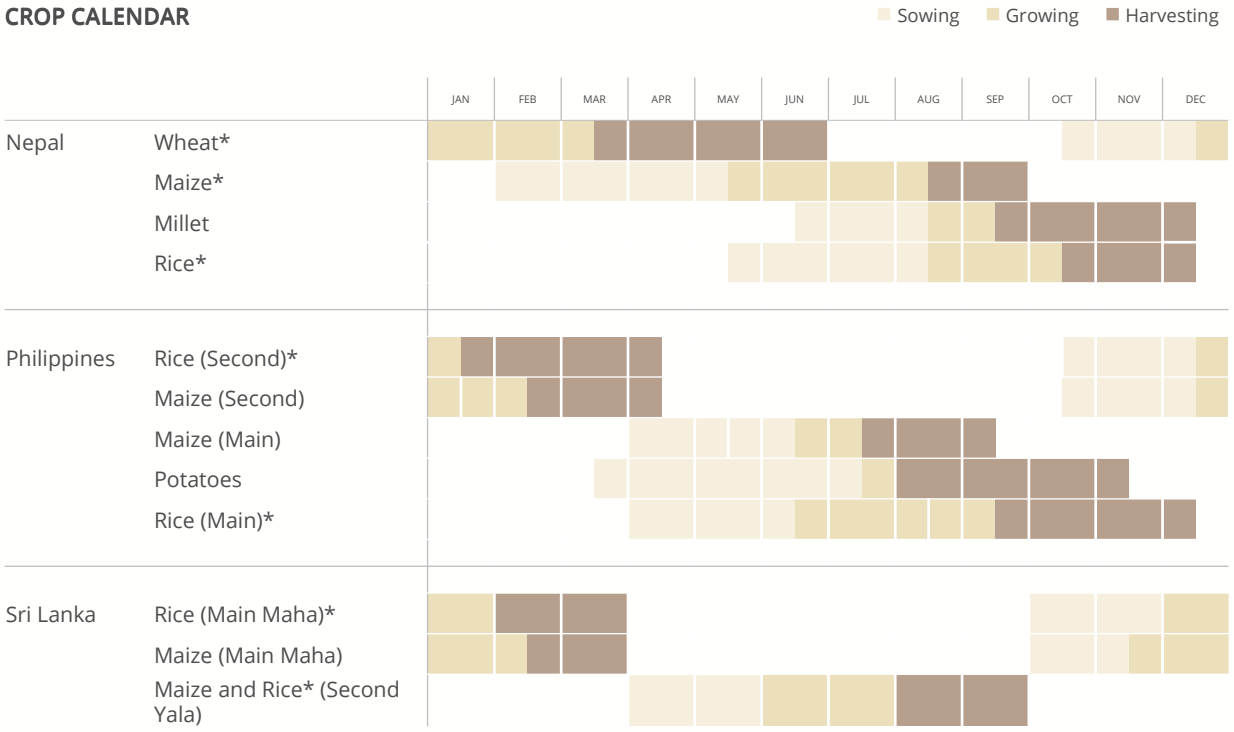
Source: FAO/GIEWS, WFP CFSAM. Periods are rounded to half-months.

In **Nepal**, the harvesting of winter wheat continued in April 2023 under good weather conditions, and the planting of maize is underway in April. The total output of 2022/23 wheat and maize is expected at a five-year average level (2017-2021) of 2.1 million tons and 2.7 million tons [26].

In the **Philippines**, the harvesting of dry-season rice continued in April 2023 under average to above-average rainfall conditions [27]. The total 2022/23 output of rice is estimated at 12.4 million tons, 2 percent higher than the five-year average for 2017-2021.

In **Sri Lanka,** land preparation and sowing of Yala season maize and rice began in April 2023 under good weather conditions. The 2023 Yala season rice production is expected to increase by over 700,000 hectares due to free mud fertilizers (Triple Super Phosphate) provided by the Government. The total 2022/23 output of rice (2.5 million tons) and maize (273,000 tons) are expected at 14 percent and 13 percent lower than the five-year average for 2017-2021 due to decreased planted areas and a shortage of chemical fertilizers[28].

CROP CALENDAR

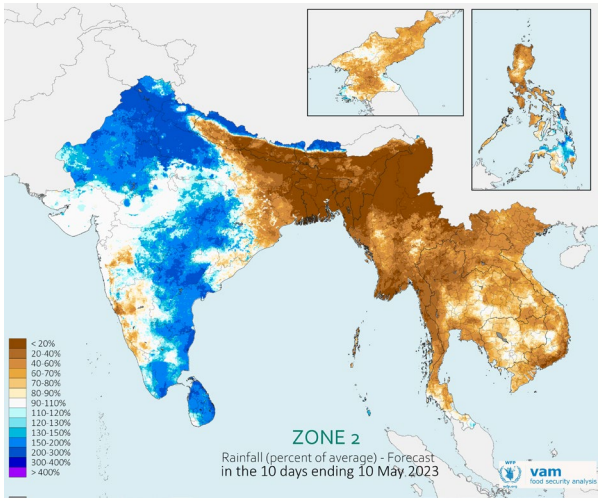


Source: FAO/GIEWS, WFP CFSAM. Periods are rounded to half-months.

Zone 2: Climate Outlook, May to July 2023

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

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



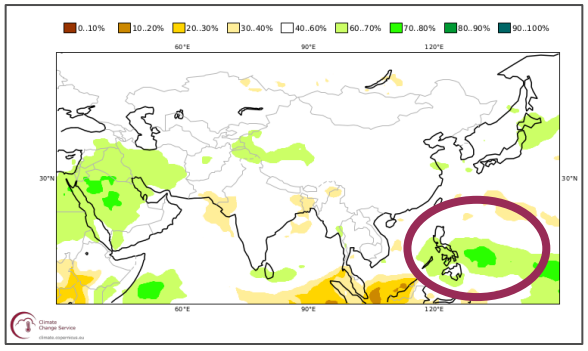
The short-term forecast during 1-10 May 2023 indicates drier than average conditions in major parts of Bangladesh, Cambodia, DPR Korea, northeastern India, Lao PDR, Myanmar, Nepal, and northern Philippines. In contrast, there is an increased chance of above-average rainfall in major parts of India, some parts of northern Nepal, southern Philippines, and Sri Lanka (100-200 mm of average monthly rainfall) (Map 12).

Rainfall during May-July 2023 is likely to be near average across Bhutan, Cambodia, DPR Korea, major parts of India, Lao PDR, major parts of Myanmar, and Nepal. In contrast, rainfall is likely to be slightly above the normal conditions (60-70 percent possibility of exceeding the median rainfall) in the central Philippines and southern Sri Lanka and slightly below-average rainfall is likely in Bangladesh, at 30-40 percent possibility (May 13).

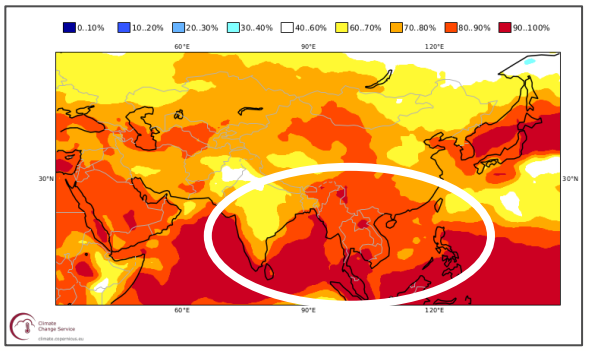
Air temperature during May-July 2023 is likely to be above the normal conditions across major parts of zone 2, particularly in some parts of southern Cambodia, southern India, central Lao PDR, southern Myanmar, central and southern Philippines, and Sri Lanka (>90 percent possibility of exceeding the median temperature). In contrast, some parts of northeastern India are likely to experience near-average air temperature (Map 14).

Rainfall during June – September 2023 (southwest monsoon season) is likely to be average to below the normal conditions across major parts of South Asia due to remaining El Niño conditions.

MAP 13. LONG TERM RAINFALL FORECAST MAY-JUL 2023, PRECIPITATION > MEDIAN, %



MAP 14. LONG TERM TEMPERATURE FORECAST MAY-JUL 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 MJJ 2023
Map 14: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC MJJ 2023

Zone 3

Fiji

Indonesia

Kiribati

Papua New Guinea

Timor-Leste

Tuvalu

Vanuatu

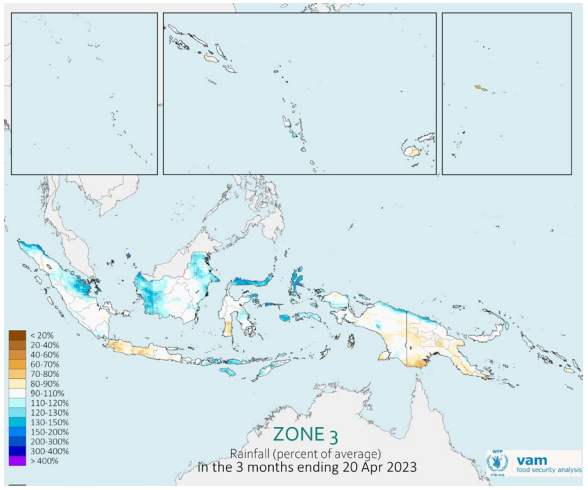
Zone 3: Rainfall Performance

Rainfall levels were higher than average in countries across Zone 3

RAINFALL AS A PERCENT OF AVERAGE, JANUARY-APRIL 2023

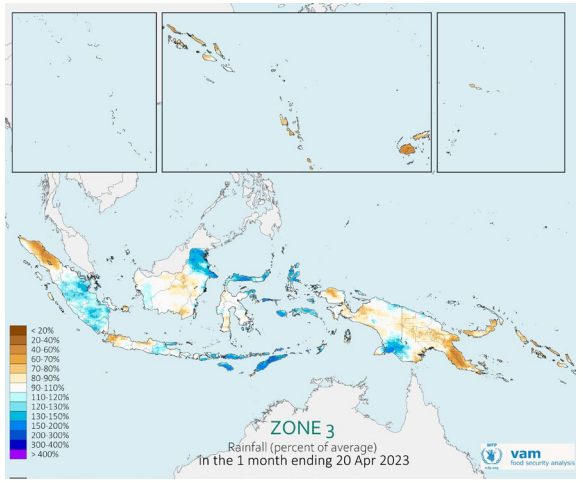
MAP 15: LAST THREE MONTHS

20 JAN 2023 — 20 APR 2023



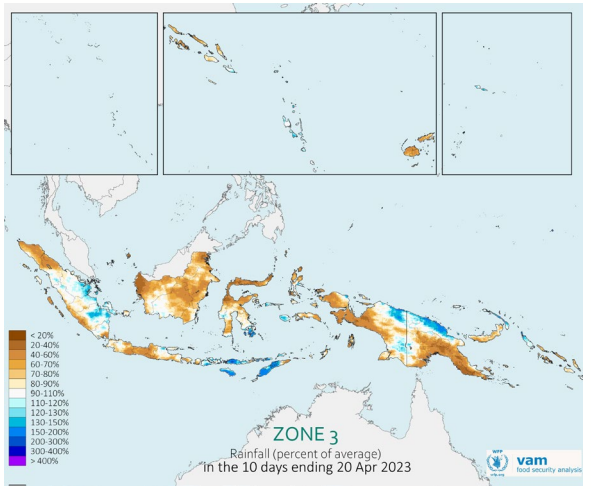
MAP 16: LAST MONTH

20 MAR 2023 - 20 APR 2023



MAP 17: LAST TEN DAYS

11-20 APR 2023



Rainfall during January – April 2023 was higher than average (500-800 mm of average monthly rainfall) across Fiji, Indonesia, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu with high risks of floods in Indonesia and Vanuatu (Map 15). In contrast, drier-than-average conditions were observed in some parts of Kiribati and Tuvalu.

During **20 March - 20 April 2023** (Map 16), above-average rainfall (more than 350 mm of average monthly rainfall) continued in major parts of Indonesia, western Papua New Guinea, and Timor-Leste.

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

In **Indonesia**, heavy rains in April 2023 caused floods and landslides in Lampung East Nusa Tenggara, Central Sulawesi, and West Java[29]; about 4,750 people were affected and more than 1,900 houses were damaged in Central Sulawesi[30].

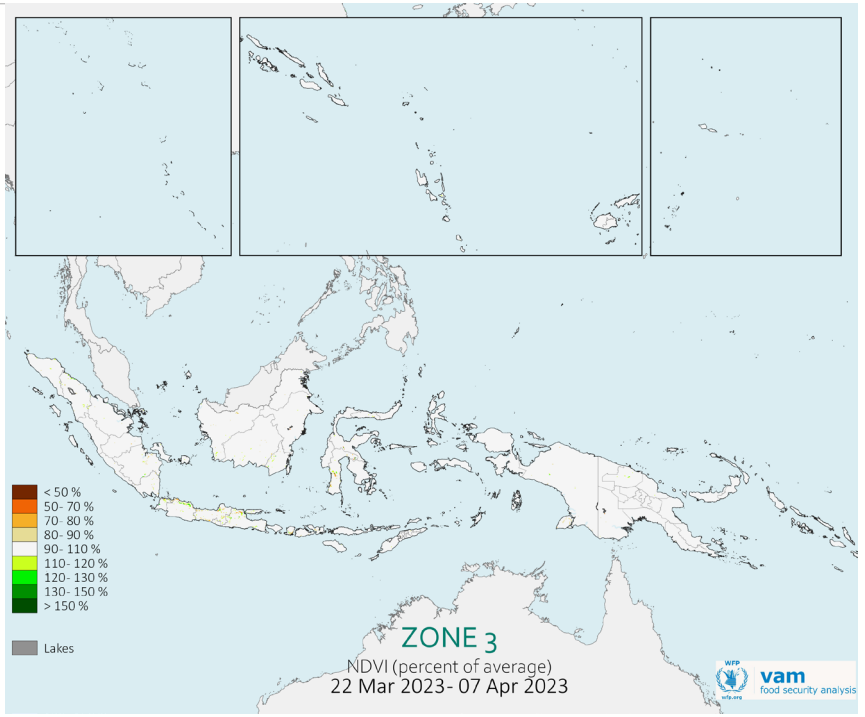
In **Vanuatu**, Tropical Cyclones Judy and Kevin in early March 2023 caused floods across the country; as of 5 April, over 251,000 people were affected by the tropical cyclones, with 868 people (157 households) displaced in evacuation centres [31].

Zone 3: Vegetation and Crop Conditions

Near average vegetation conditions were observed in most parts of zone 3 between 22 March – 7 April 2023. Only a few areas (central Java and southern Sulawesi) have below-average vegetation conditions as heavy rains during the last six months 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), 22 MARCH – 7 APRIL 2023



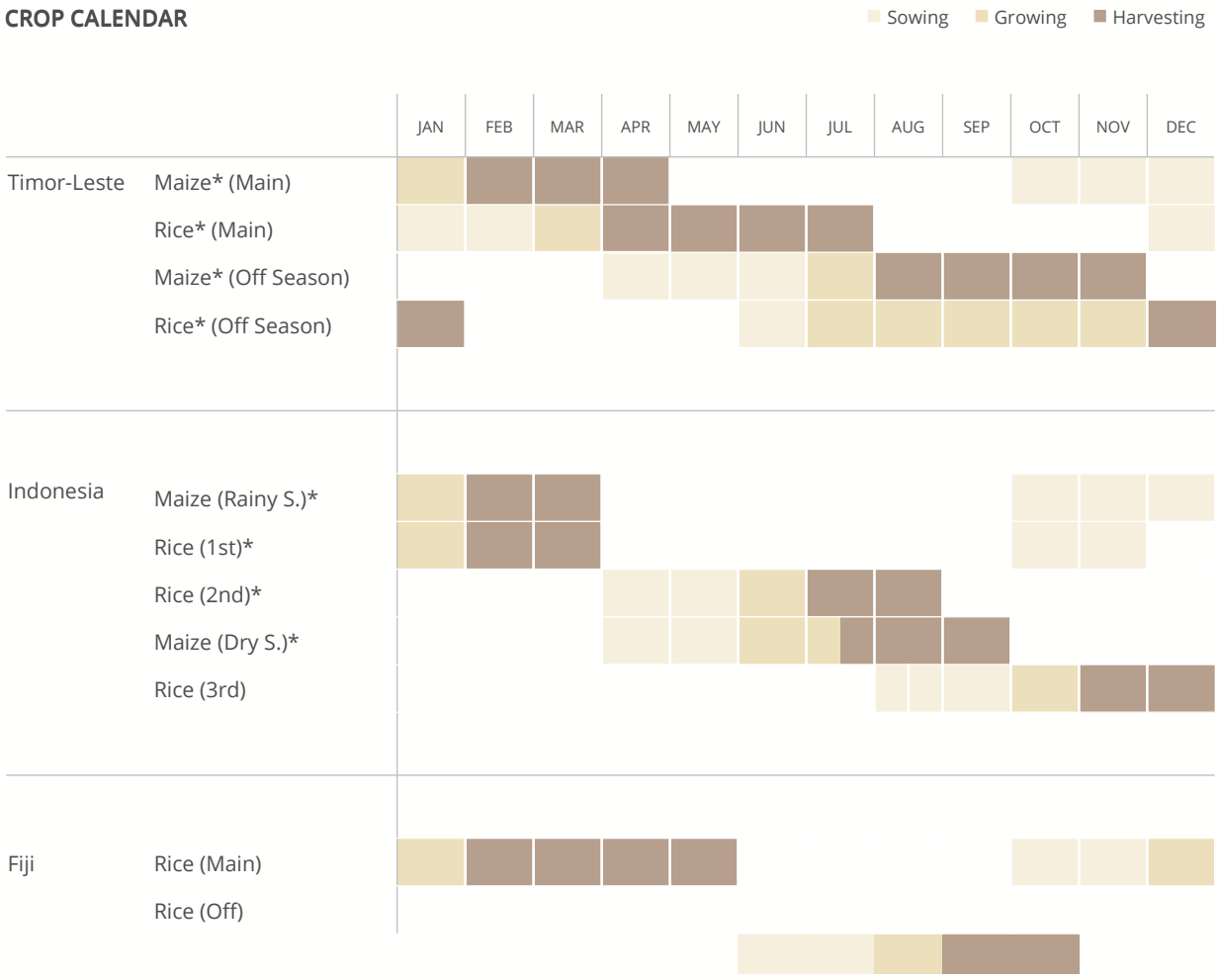
In **Fiji**, the planting of cane continued in April 2023 under good weather conditions, as adequate water supply and harvesting of main rice continued in April [32]. The 2023 output of rice is forecast to decrease from the previous year due to a shortage of farm labour, with imports of about 40,000 metric tons of rice.

In **Indonesia**, the planting of dry-season rice began in April 2023 under favorable weather conditions[33]. The 2022/23 rice production is expected at 34 million tons, 2.7 percent lower than the five-year average level for 2017- 2021,

In **Papua New Guinea**, the growing of main food crops (banana, sweet potato, and taro) in April 2023 continued under mixed weather conditions, and some parts of the southeastern region experienced adequate water supply due to above-average rainfall on April [34]. The 2022/23 output of palm oil is expected at 650,000 tons, 2 percent higher than the five-year average level for 2017-2021.

In **Timor-Leste,** the harvesting of main maize continued in April 2023, and harvesting of main rice and preparation and sowing of off-season maize began in April under good weather conditions. The 2022 rice production is estimated at about 86,000 tons, well above the five-year average [35] due to the availability of farm inputs, especially seeds from the government subsidy [36].

CROP CALENDAR

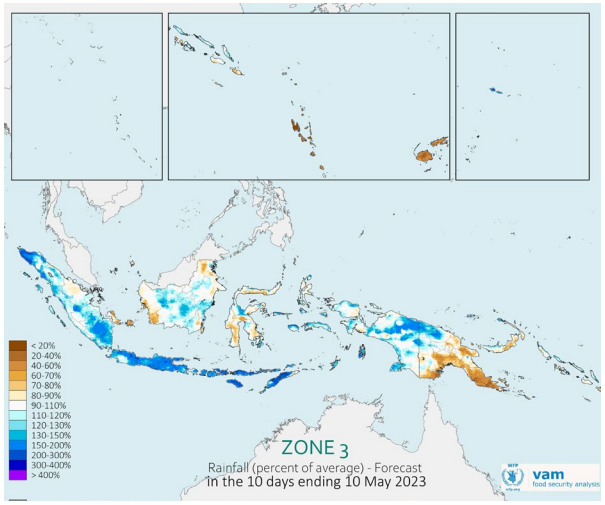


Source: FAO/GIEWS, WFP CFSAM, USDA. Periods are rounded to half-months.

Zone 3: Climate Outlook, May to July 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 MAY 2023

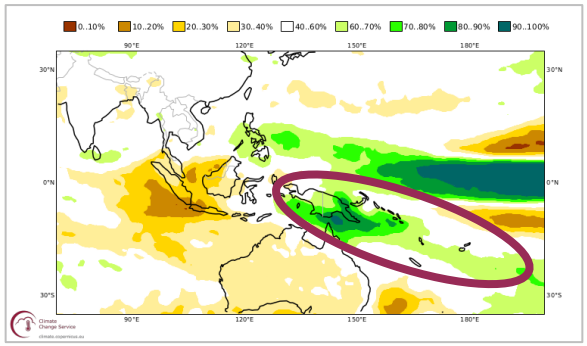


The short-term forecast during 1-10 May 2023 indicates that wetter than average conditions (100-200 mm of average monthly amount rainfall) are likely in some parts of Indonesia (Provinces of Aceh, West Java, Central Kalimantan, Central Sulawesi, West Papua), western Papua New Guinea, Solomon Islands, and Timor-Leste. Light rainfall is expected across Fiji, Vanuatu, and the Central Pacific Island States (Kiribati and Tuvalu) (Map 19).

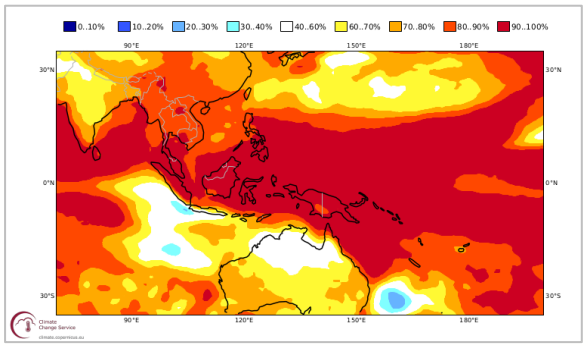
Forecasts for May-July 2023 show above-average rainfall conditions (70-90 percent possibility of exceeding the median rainfall average) in southern Papua of Indonesia, southern and eastern Papua New Guinea, and southern Solomon Islands. In contrast, some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), and the Central Pacific Island States (Kiribati and Tuvalu) are likely to experience below-average rainfall (Map 20).

Air temperature during May-July 2023 is likely to be higher than average across this zone (greater than 80 percent possibility of exceeding the median temperature) (Map 21).

MAP 20. LONG TERM RAINFALL FORECAST MAY-JUL 2023, PRECIPITATION > MEDIAN, %



MAP 21. LONG TERM TEMPERATURE FORECAST MAY-JUL 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 MJJ 2023
Map 21: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC MJJ 2023

Areas of Concern

Climate-related concerns

Potential drivers of Food Insecurity in March 2023

Rainfall Seasonal Patterns

Climate-related concerns

RECENT CLIMATE HAZARDS (APRIL 2023)

Afghanistan– Floods (Apr 2023)
Heavy rains and flash floods killed one person, with over 10 people injured and thousands of acres of farmlands damaged in the northeastern part, particularly in Takhar province[37].

Cambodia-Floods (Apr 2003)
Heavy rains and thunderstorms affected over 14,000 people, with more than 2,800 houses damaged across 24 provinces[38].

India– Floods (Apr 2023)
Unseasonal rains and hailstorms have destroyed 42,000 hectares of farmlands in Maharashtra province[39], and over 41,000 people were affected in Assam province[40].

Indonesia– Floods (Mar 2023)
Heavy rains caused floods and landslides in Lampung East Nusa Tenggara, Central Sulawesi, and West Java; about 4,750 people were affected and more than 1,900 houses were damaged in Central Sulawesi [41].

Myanmar-Tornado (Apr 2023)
A large tornado killed 8 people, with 128 people injured and 232 houses damaged in Naypyidaw, a central part of the country [42].

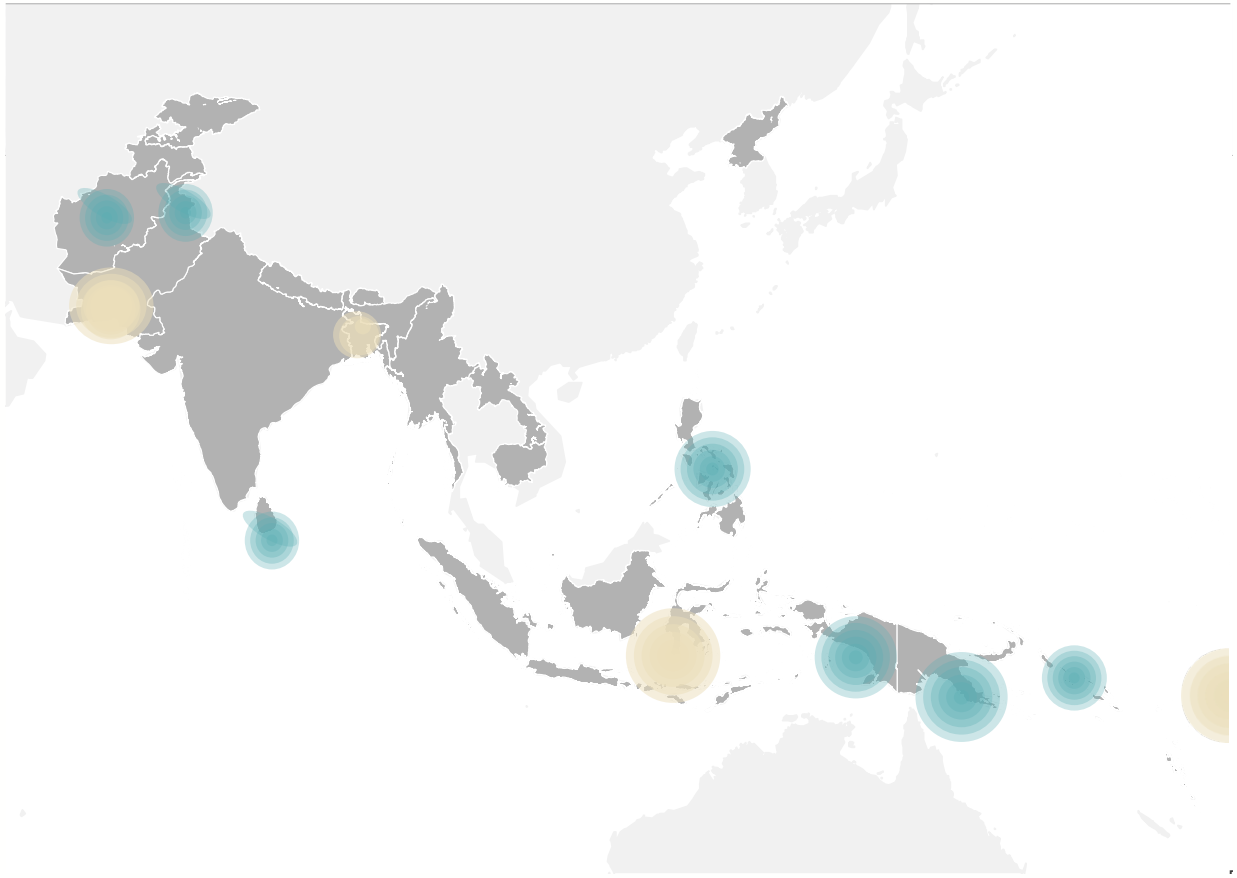
Pakistan– Floods (Apr 2022)
Heavy rains caused floods in the northwestern part. Over five people died and 135 houses were damaged in Khyber Pakhtunkhwa province [43].

Philippines – Floods (Apr 2023)
Tropical depression caused floods in Calabarzon, Mimaropa, Regions V and XI; over 136,000 people were affected [44].

Vanuatu-Cyclones (Mar-Apr 2023)
Tropical Cyclones Judy and Kevin caused floods across the country, over 250,000 people were affected, with 868 people were displaced[45].

Climate-related concerns

SEASONAL OUTLOOK (MAY-JULY 2023)



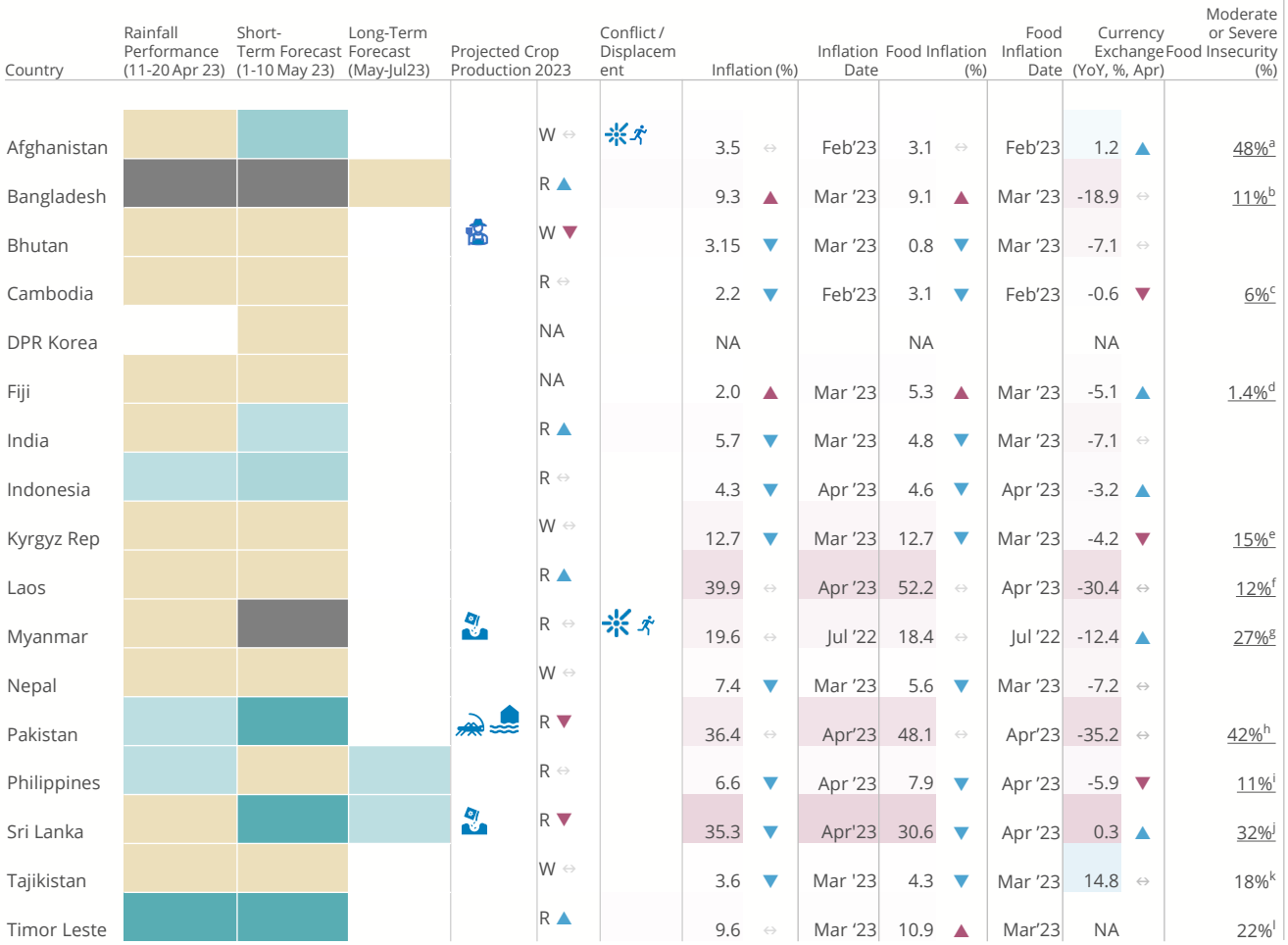
Wetter than normal rainfall: Wetter conditions are likely in some parts of central Afghanistan, southern Papua of Indonesia, northern Pakistan, southern and eastern Papua New Guinea, central Philippines, southern Sri Lanka, and southern Solomon Islands.

Lower than normal rainfall: Drier conditions are projected in Bangladesh, some parts of Indonesia (Java, southern and western Kalimantan, southern Sumatra), Kiribati, southern Pakistan, and Tuvalu.

Cyclone activity: El Niño is anticipated during May-July 2023 and the potential for the formation of tropical cyclones in the Southwest Pacific Islands is very low during 30 April - 5 May [46]. In the Philippines, a low likelihood of a tropical cyclone is forecast to form in the country during 1 - 11 May [47].

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

Potential Drivers of Food Insecurity in April 2023



Country	Rainfall Performance (11-20 Apr 23)	Short-Term Forecast (1-10 May 23)	Long-Term Forecast (May-Jul23)	Projected Crop Production 2023		Conflict / Displacement	Inflation (%)		Inflation Date	Food Inflation (%)		Food Inflation Date	Currency Exchange (YoY, %, Apr)		Moderate or Severe Food Insecurity (%)
Afghanistan				W	↔		3.5	↔	Feb'23	3.1	↔	Feb'23	1.2	▲	48%[a]
Bangladesh				R	▲		9.3	▲	Mar '23	9.1	▲	Mar '23	-18.9	↔	11%[b]
Bhutan				W	▼		3.15	▼	Mar '23	0.8	▼	Mar '23	-7.1	↔	
Cambodia				R	↔		2.2	▼	Feb'23	3.1	▼	Feb'23	-0.6	▼	6%[c]
DPR Korea				NA			NA			NA			NA		
Fiji				NA			2.0	▲	Mar '23	5.3	▲	Mar '23	-5.1	▲	1.4%[d]
India				R	▲		5.7	▼	Mar '23	4.8	▼	Mar '23	-7.1	↔	
Indonesia				R	↔		4.3	▼	Apr '23	4.6	▼	Apr '23	-3.2	▲	
Kyrgyz Rep				W	↔		12.7	▼	Mar '23	12.7	▼	Mar '23	-4.2	▼	15%[e]
Laos				R	▲		39.9	↔	Apr '23	52.2	↔	Apr '23	-30.4	↔	12%[f]
Myanmar				R	↔		19.6	↔	Jul '22	18.4	↔	Jul '22	-12.4	▲	27%[g]
Nepal				W	↔		7.4	▼	Mar '23	5.6	▼	Mar '23	-7.2	↔	
Pakistan				R	▼		36.4	↔	Apr'23	48.1	↔	Apr'23	-35.2	↔	42%[h]
Philippines				R	↔		6.6	▼	Apr '23	7.9	▼	Apr '23	-5.9	▼	11%[i]
Sri Lanka				R	▼		35.3	▼	Apr'23	30.6	▼	Apr '23	0.3	▲	32%[j]
Tajikistan				W	↔		3.6	▼	Mar '23	4.3	▼	Mar '23	14.8	↔	18%[k]
Timor Leste				R	▲		9.6	↔	Mar '23	10.9	▲	Mar'23	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
- Shortage of farm workers
- ▲ 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): February 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)

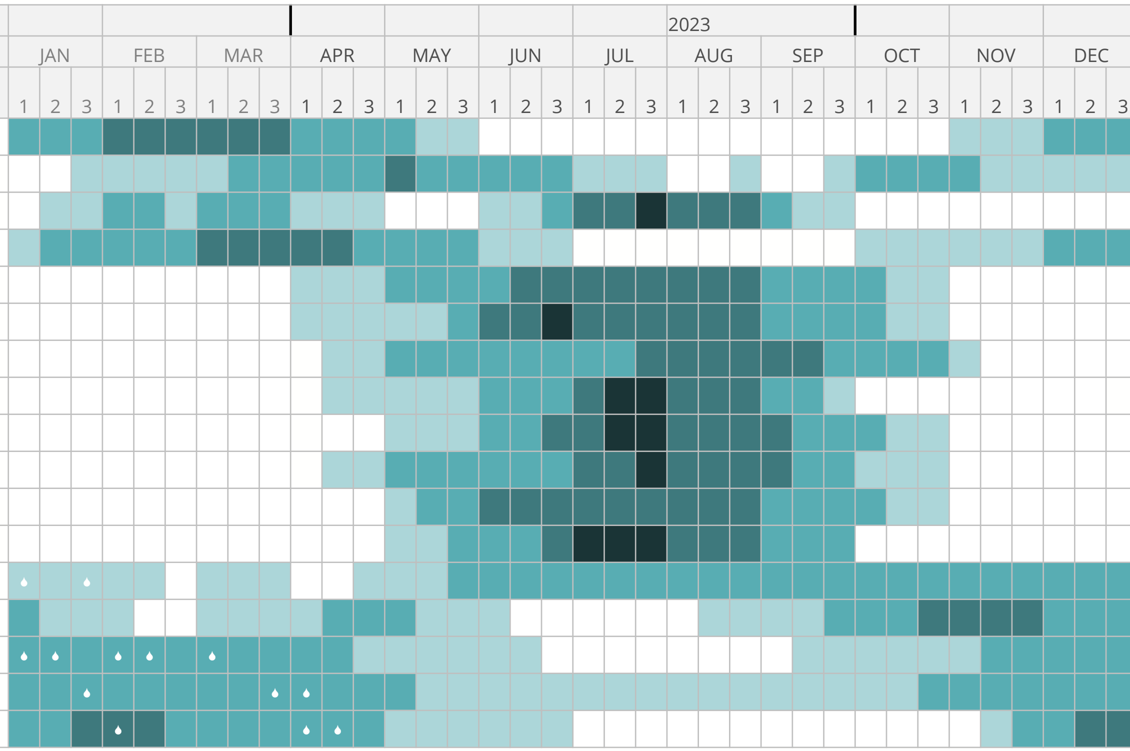
[i] **Philippines** Food Security Monitoring: October 2022

[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



Zone	Country	Average annual rainfall (mm)	Accumulative rainfall variation by April 2023(%)	Accumulative rainfall variation by April 2023(mm)
Zone 1	Afghanistan	231.4	-33.85	-22%
	Kyrgyz Republic	394.5	-45.72	-42%
	Pakistan	227.0	-2.83	-4%
	Tajikistan	323.3	-66.03	-41%
Zone 2	Bangladesh	2,330.7	-29.68	-21%
	Bhutan	893.5	-26.94	-32%
	Cambodia	1,964.8	-38.04	-31%
	DPR Korea	941.9	15.27	22%
	India	1,098.9	-4.22	-8%
	Lao PDR	1,838.2	-37.51	-31%
	Myanmar	2,090.0	-18.14	-26%
	Nepal	1,384.7	-39.05	-38%
	Philippines	2,251.6	182.03	38%
	Sri Lanka	1,792.5	-31.83	-8%
Zone 3	Fiji	2,820.7	10.26	1%
	Indonesia	2,685.6	62.63	6%
	Timor-Leste	1,749.4	7.66	1%

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

The designations employed and the presentation of material in the maps do not imply the expression of any opinion whatsoever of WFP concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

Photo Credits

Page 1: © WFP / Srawan Shrestha

Page 2: © WFP / Saiyna Bashir

Page 5, 14, 33: © WFP / Samantha Reinders

Page 8: © WFP / Andrew Quilty

Page 22: © WFP / Giulio dAdamo

Page 33: © WFP / Sayed Asif Mahmud

Contact us

REGIONAL BUREAU FOR ASIA AND THE PACIFIC