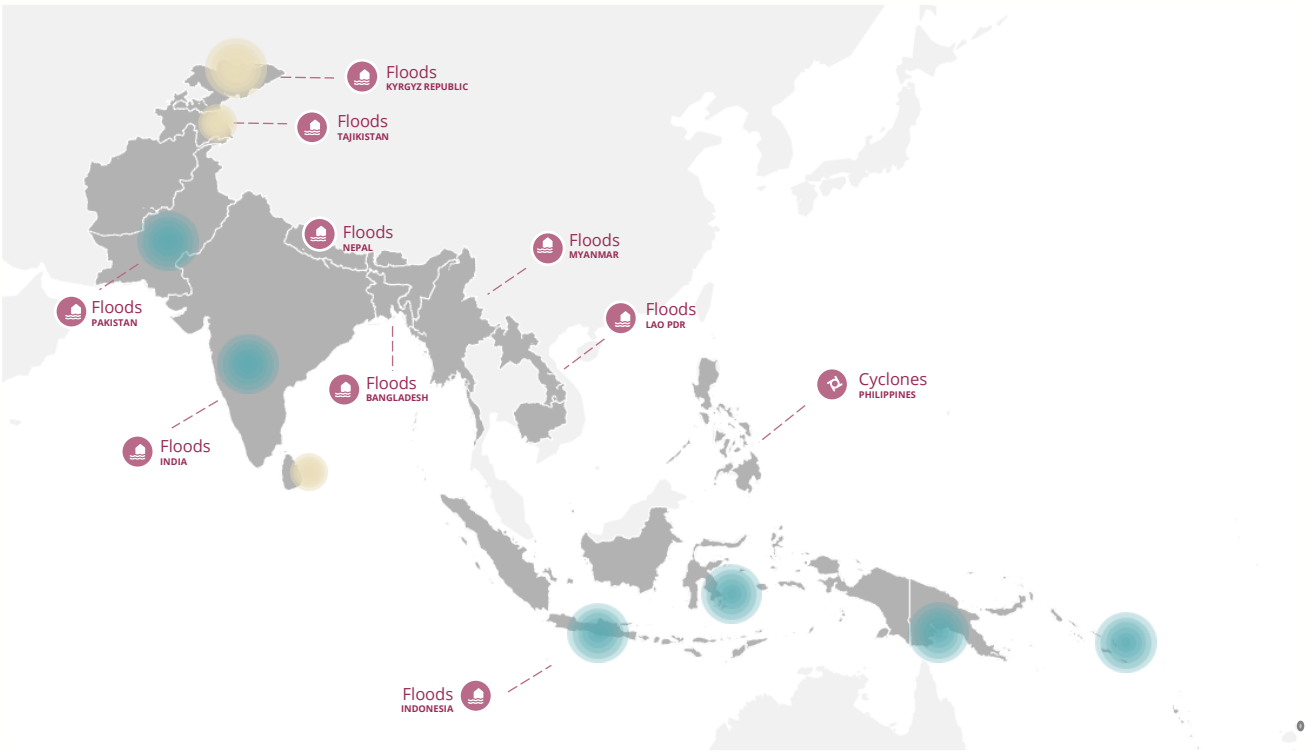
World Food Programme

Seasonal Monitor

Asia and the Pacific, August 2023

REGIONAL BUREAU FOR ASIA AND THE PACIFIC

I. Climate-related concerns



May-August 2023 RAINFALL PERFORMANCE

There was moderate to heavy rainfall in western India, Indonesia, Pakistan, western Papua New Guinea, Solomon Islands. Growing wet season rice continued under good weather conditions except in flood-affected areas in northern Luzon of Philippines with 34,979 hectares of agricultural land were damaged.

Drier-than-average conditions continued in western Kyrgyz Republic, Sri Lanka, and Tajikistan. Growing of spring season crops continued under mixed weather conditions in these countries, with a high risk of locust infestations to crops in the Kyrgyz Republic.

RECENT CLIMATE HAZARDS (August 2023)

Bangladesh – Floods (August 2003): Heavy rains and landslides affected more than 1.2 million people in Chattogram Division, particularly Chattogram, Bandarban, Cox's Bazar, and Rangamati districts.[1]

India –Floods (August 2023): Heavy monsoon rains killed 14 people in the northern Himalayan states and about 819 people in Uttarakhand were displaced.[2]

Indonesia – Floods (August 2023): Heavy rains caused floods and landslides in West Sumatra, North Sumatra and North Sulawesi. About 22,500 people were affected with 3,600 houses damaged.[3] About 2,852 people (713 households) were affected in Pesisir Selatan District, West Sumatra.[4]

Kyrgyz Republic-Floods (August 2023): Heavy rains and landslides affected 13,000 people (200 households) in Issyk-Kul region.[5]

Lao PDR-Floods (August 2023): Heavy monsoon rains caused floods and landslides across Vientiane Capital and nine provinces (Huaphanh, Xayaboury, Xiengkhuang, Vientiane, Borikhamxay, Khammuane, Savannakhet, Champasack, Xaysomboon). About 13,777 households were affected and 6 people died.[6]

Myanmar-Floods (August 2023): Heavy monsoon rains caused floods in northern Shan and Rakhine; about 50,000 people were affected and over 30,000 people were displaced.[7]

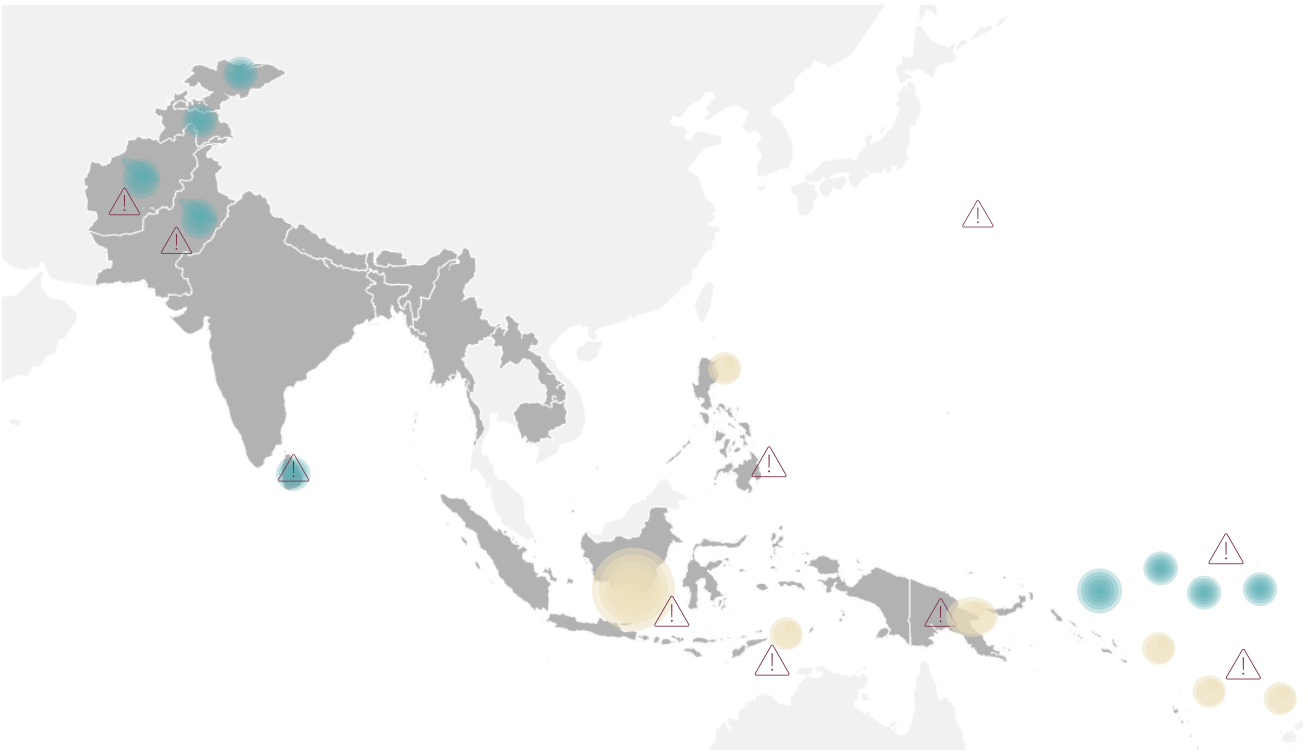
Nepal – Floods (August 2023): Heavy rains caused floods in Mustang district, Gandaki province; 35 families were displaced, with 29 houses fully and 13 houses partially damaged.[8]

Pakistan – Floods (August 2023): Heavy rains caused flash floods across seven districts of Punjab province (Kasur, Okara, Bahawalpur, Pakpathan, Vehari, Bahawalnagar, Lodha), and over 238,000 people were displaced.[9]

Philippines – Cyclone (August 2023): Heavy monsoon rains and cyclone Saola caused floods across six regions in the northern part with 8,000 people affected.[10]

Tajikistan-floods (August 2023): Heavy rains caused flash floods across nine districts in central and western regions (Dushanbe, Vahdat, Hisor, Rudaki, Varzob, Devashtich, Rasht, Sangvor, Tajikabad), 21 people died - 17 in Vahdat, 2 in Rudaki and 2 people in Varzob.[11]

II. Seasonal outlook



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

SEASONAL OUTLOOK (SEPTEMBER-NOVEMBER 2023)

Higher than normal rainfall: Wetter conditions are likely in Central Asia (Afghanistan, Kyrgyzstan, Tajikistan), Sri Lanka and some Pacific countries (Kiribati, Nauru, Solomon Islands, and Tuvalu).

Lower than normal rainfall: Drier conditions are projected in Philippines, Indonesia, northern Timor-Leste, Fiji, Papua New Guinea and Tonga.

Cyclone activity: El Niño is anticipated from September to November 2023 and the cyclone activity is expected between 20- 26 September over eastern part of the Philippines.[12]

Warmer than normal temperature; Warmer conditions are likely across major parts of Asia and the Pacific.

El Niño outlook: El Niño will continue in the coming months (September to November 2023) at 99 percent possibility, and is likely to continue until early 2024 (January-March 2024) at an 87 percent possibility (Figure 1).[13] El Niño contributes to drier conditions across South and Southeast Asia and western countries of the Pacific region during September to November 2023 and wetter conditions during January to April 2024 in Central Asia.

High risks of flood caused by impacts of El Niño conditions: Afghanistan, Sri Lanka, Pakistan, Kiribati, Tuvalu, and Solomon Islands.

High risks of drought caused by impacts of El Niño conditions: Philippines, Papua New Guinea, Indonesia, Timor Leste, Fiji, Tonga, Vanuatu.

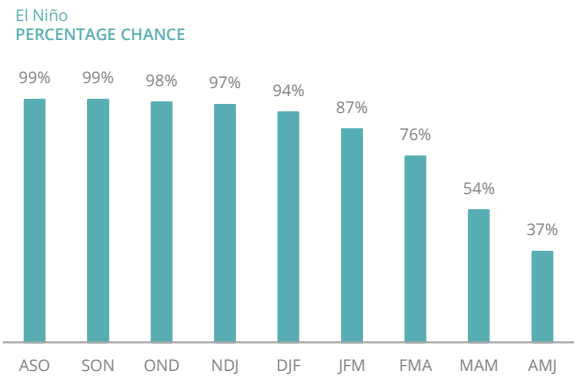
ESTIMATED CROP PRODUCTION (2023-2024)

Agricultural prospects (rice, wheat, barley, and maize) for 2023/2024 are generally favourable in the region.

However, the strong impacts of El Niño this year are expected to have negative impacts on rainfall patterns and crop production in Afghanistan, Pakistan, and Sri Lanka with a high risk of floods. Drier than average conditions may also reduce rice outputs in Indonesia, Papua New Guinea and Timor-Leste.

An outbreak of Italian locusts was observed across the Kyrgyz Republic in August 2023. About 48,280 hectares of farmlands have been treated by chemical methods during January-August 2023.

FIGURE 1: IRI/CPC PROBABILISTIC ENSO OUTLOOK (RELEASED 18 August 2023)



[15] Source: IRI Climate Forecasts

III. Potential Drivers of Food Insecurity in August 2023

Country	Rainfall Performance (11-20 Aug 23)	Short-Term Forecast (1-10 Sep 23)	Long-Term Forecast (Sep-Nov23)	Projected Crop Production 2023		Conflict / Displacement	Inflation (%) 1M		Inflation Date	Food Inflation (%) 1M		Food Inflation Date	Currency Exchange (%, Jul) YoY		Moderate or Severe Food Insecurity (%)	
Afghanistan					W ▲		-6.5	▲	Jun'23	-11.2	▲	Jun'23	5.6	▲	35%[a]	▼
Bangladesh					R ▲		9.7	⇔	Jul'23	9.8	⇔	Jul'23	-5.7	▲	31%[b]	▲
Bhutan					NA		4.0	▲	Jul'23	5.3	▲	Jul'23	-3.7	▼		
Cambodia					R ▲		0.1	▼	Jun'23	2.0	▼	Jun'23	-0.6	▲	6%[c]	▼
Fiji					NA		0.3	▼	Jul'23	8.0	▼	Jul'23	-18.7	▼	8%[d]	▲
India					R ▲		7.4	▲	Jul'23	11.5	▲	Jul'23	-3.8	▼		
Indonesia					R ⇔		3.3	▲	Aug'23	3.5	▲	Aug'23	-1.9	▼		
Kyrgyz Rep					W ▲		10.3	⇔	Jul'23	6.8	⇔	Jul'23	-7.6	⇔	10%[e]	▼
Laos					R ▲		25.9	▼	Aug'23	31.9	▼	Aug'23	-17.7	▲	13.3%[f]	▼
Myanmar					R ⇔		19.6	⇔	Jul'22	18.4	▲	Jul'22	0.0	⇔	27%[g]	▲
Nepal					R ▲		7.4	▲	Jul'23	7.4	▲	Jul'23	-3.4	▼	14.3%[h]	▼
Pakistan					R ▲		27.4	▼	Aug'23	38.5	⇔	Aug'23	-18.9	▲	29%[i]	▼
Philippines					R ▲		5.3	▲	Aug'23	8.1	▲	Aug'23	1.8	⇔	15%[j]	▼
Sri Lanka					R ⇔		4.0	▼	Aug'23	-4.8	▲	Aug'23	12.7	▲	17%k	▼
Tajikistan					W ▲		2.3	⇔	Jul'23	1.0	▼	Jul'23	-6.5	⇔	18%[l]	
Timor Leste					R ▲		7.1	⇔	Jul'23	8.4	▲	Jul'23	NA		20%[m]	▼

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
B Barley
R Rice
M Maize

INFLATION/FOOD INFLATION
▲ (Food) inflation rate change increased by >5 percent in last month
▼ (Food) inflation rate change decreased by <5 percent in last month
⇔ (Food) inflation rate change between -5 to 5 percent in last month

CURRENCY EXCHANGE
▲ Exchange rate change increased by more than 5 percent in last month
▼ Exchange rate change decreased by more than 5 percent in last month
⇔ Exchange rate change between -5 percent to 5 percent in last month

CONFLICT AND DISPLACEMENT
- Conflict
- Displacement.7

NA : updated data not available

[a] **Afghanistan**' IPC May-October 2023
[b] **Bangladesh** IPC May-September 2023, not representative at the national level (only hotspot areas covered)
[c] **Cambodia** Food Security and Nutrition Assessment Flood Prone Areas: October 2022
[d] **Fiji** Food Security Analysis Round Fourteen: March 2023
[e] **Kyrgyz Republic** Price Monitoring for Food Security: June 2023
[f] **Lao PDR** Food Security Monitoring: April/May 2023
[g] **Myanmar** DIEM Data in Emergencies Monitoring Brief round 4: January 2023
[h] **Nepal** Household Livelihoods, Food Security, and Vulnerability Survey round 8: April 2023
[i] **Pakistan** IPC April-October 2023, not representative at national level. Only covered Balochistan, Khyber Pakhtunkhwa, and Sindh
[j] **Philippines** IPC April 2023
[k] **Sri Lanka** Crop and Food Security Assessment Mission: May 2023
[l] **Tajikistan** Quarterly Household Food Security and Market Update July-September 2022: October 2022
[m] **Timor-Leste** IPC February 2023

Zone 1

Afghanistan, Kyrgyz Republic, Pakistan, and Tajikistan

Rainfall Performance, May-August 2023

In **May-August 2023**, drier-than-average conditions remained in some parts of western Kyrgyz Republic and Tajikistan. Rainfall was moderate to heavy (400-600 mm per month on average) in some parts of southern and northern Pakistan (Map 1).

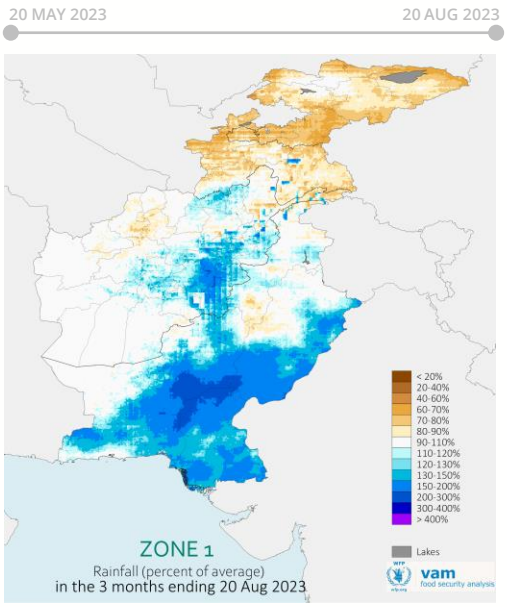
In the last month, **20 July-20 August 2023**, moderate to heavy rainfall (200-400 mm as monthly average) was observed in some parts of central and northern Pakistan (Map 2).

In the **Kyrgyz Republic**, heavy rains and mudflows on 7 August 2023 affected 13,000 people (200 households) in Issyk-Kul region. [14]

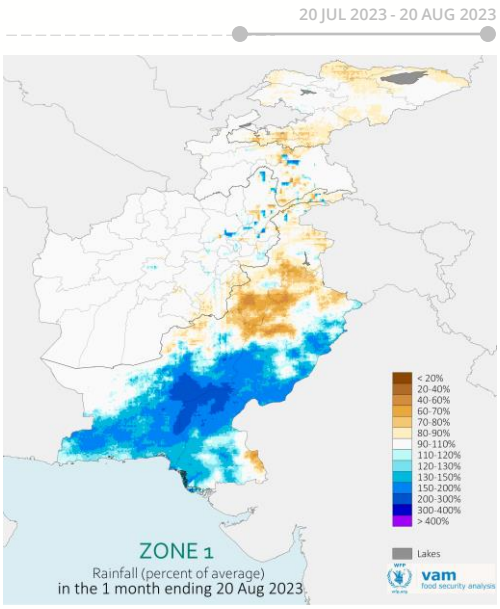
In **Pakistan**, heavy rains in mid-August 2023 caused flash floods and landslides across seven districts of Punjab province (Kasur, Okara, Bahawalpur, Pakpathan, Vehari, Bahawalnagar, Lodha), and over 238,000 people were displaced. [15]

In **Tajikistan**, heavy rains on 27 August 2023 caused flash floods across nine districts in central and western regions (Dushanbe, Vahdat, Hisor, Rudaki, Varzob, Devashtich, Rasht, Sangvor, Tajikabad), 21 people died, 17 in Vahdat, 2 in Rudaki and 2 in Varzob. [16]

MAP 1: LAST THREE MONTHS



MAP 2: LAST MONTH



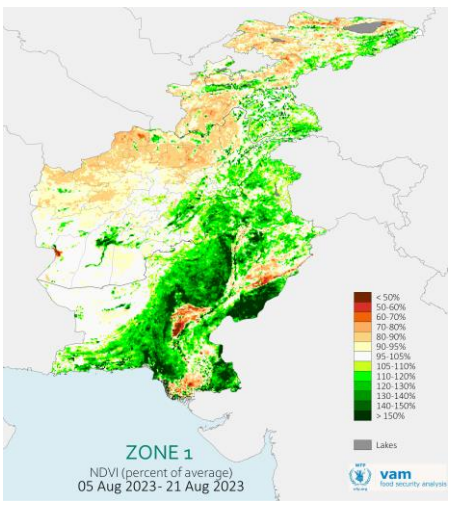
Vegetation Index

This zone had mixed conditions of vegetation index across in recent weeks.

A below-average vegetation index from 5-21 August 2023 was observed in some parts of western and northern Afghanistan and Kyrgyz Republic, central Pakistan, and western Tajikistan.

Above-average vegetation continued in some parts of eastern Afghanistan, eastern Kyrgyz Republic, major parts of Pakistan, and eastern Tajikistan (Map 3).

MAP 3: NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 5-21 August 2023



Zone 1

Afghanistan, Kyrgyz Republic, Pakistan, and Tajikistan

Crop Production

In **Afghanistan**, the harvesting of spring wheat crops continued in August 2023 under good weather conditions.[17] The 2023/24 wheat output is expected at 5.17 million mt, 11.4 percent higher than the five-year average for 2018-2022.[18] The control operations of Moroccan locusts were completed in August across the country, and a total of 42,726 hectares of farmlands were treated by chemical methods during January-August 2023.[19]

In the **Kyrgyz Republic**, the growing of spring wheat crops continued under such abnormally high temperatures that the gross yield of wheat is estimated to decrease by 29.7 percent and barley may decrease by 43.6 percent.[20] The 2023/24 wheat output is expected at 520,000 mt – 7 percent lower than the five-year average for 2018-2022 due to the larger area planted.[21] The Italian locusts in August 2023 started fledging and mating in some parts of the country, and about 48,280 hectares of farmlands have been treated by chemical methods for locust control during January-August 2023.[22]

In **Pakistan**, the growing of spring rice crops continued under light to moderate rainfall conditions except for flood–affected areas in Punjab province.[23] The 2023/24 output of rice is expected at 9 million mt – 20 percent higher than the five-year average for 2018-2022 due to good weather conditions and adequate irrigation water supply.[24]

In **Tajikistan**, the growing of spring cereals (wheat, barley) continued under light to moderate rainfall conditions across major parts of the country. The harvesting of 2023 spring cereals starts in September.[25] The 2023/24 output of wheat is expected at 800,000 mt – 1.8 percent higher than the five-year average for 2018-2022. The 2023/24 output of barley is expected at 140,000 mt – 7.7 percent higher than the five-year average for 2018-2022[26]

Zone 1

Afghanistan, Kyrgyz Republic, Pakistan, and Tajikistan

Climate Outlook, September to November 2023

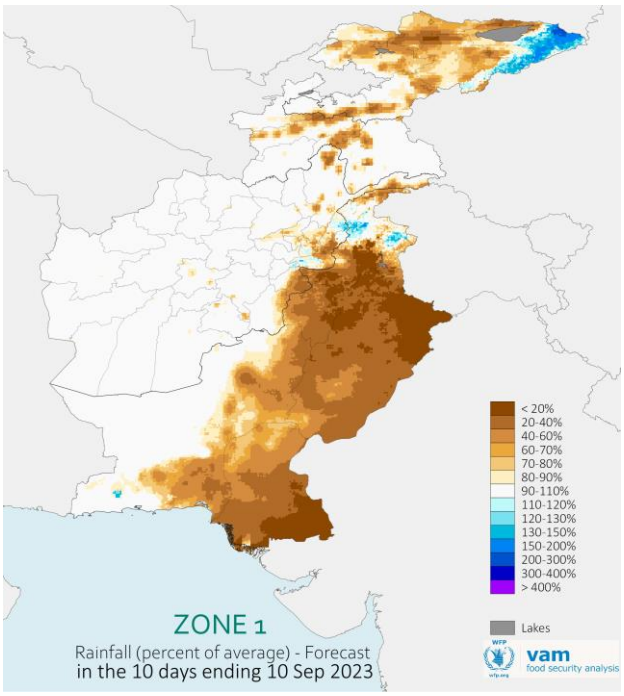
Normal to Drier-than-average-conditions are expected across Zone 1 in the short-term

The short-term forecast from 1 to 10 September 2023 (Map 4) showed average to below-average rainfall across northern and central Kyrgyz Republic and major parts of Pakistan. Light rainfall conditions were likely in some parts of eastern Kyrgyz Republic and northern Pakistan.

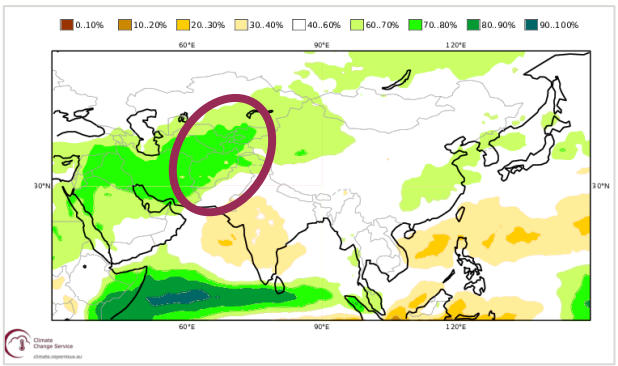
Rainfall during September-November 2023 (Map 5) is likely to be light to moderate above average rainfall conditions across Afghanistan, Kyrgyz Republic, northern Pakistan, Tajikistan (60-70 percent possibility of exceeding the median rainfall).

During the forecast period, air temperature (Map 6) will likely be above normal across Zone 1 (>80 percent possibility of exceeding the median temperature).

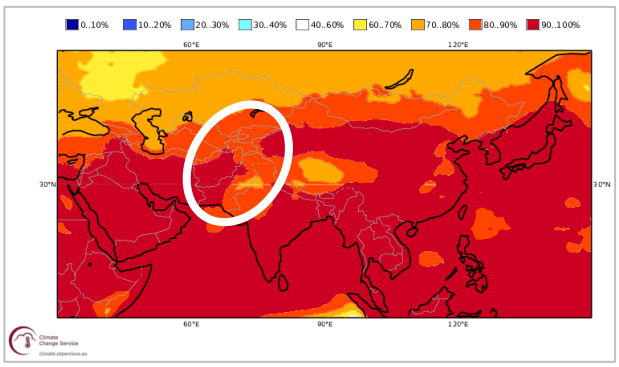
MAP 4: SHORT-TERM RAINFALL FORECAST AS A PERCENT OF AVERAGE, 1-10 SEP 2023



MAP 5. LONG-TERM RAINFALL FORECAST SEP-NOV 2023, PRECIPITATION > MEDIAN, %.



MAP 6. LONG TERM TEMPERATURE FORECAST SEP-NOV 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 ASO 2023
Map 7: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC ASO2023

Zone 2

Bangladesh, Bhutan, Cambodia, India, Lao PDR, Myanmar, Nepal, Philippines, and Sri Lanka

Rainfall Performance, May-August 2023

Drier-than-average conditions in May-August 2023 (Map 7) were observed across major parts of Bangladesh, central India, western Myanmar and central Sri Lanka, while rainfall was moderate to heavy (400-600 mm as monthly average) in some parts of western India.

Drier-than-average condition continued from **20 July-20 August 2023** across major parts of Zone 2, while light to moderate rainfall was observed in some parts of northern and western India and southern the Philippines (Map 8).

In **Bangladesh**, heavy monsoon rains on 5-10 August 2023 caused flash floods and landslides in Chattogram Division, particularly Cahattogram, Bandarban, Cox's Bazar and Rangamati districts; more than 1.2 million people were affected. [27]

In **India**, heavy monsoon rains on 24-25 August 2023 killed 14 people in northern Himalayan states and about 819 people in Uttarakhand were displaced. [28]

In **Lao PDR**, heavy monsoon rains in early of August 2023 caused floods and landslides across Vientiane Capital and nine provinces (Huaphanh, Xayaboury, Xiengkhuang, Vientiane, Borikhamxay, Khammuane, Savannakhet, Champasack, Xaysomboon). About 13,777 households were affected and 6 people died. [29]

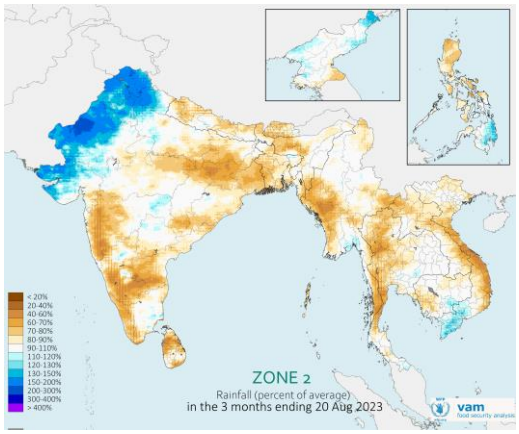
In **Myanmar**, heavy monsoon rains on 7-10 August 2023 caused floods in northern Shan and Rakhine. About 50,000 people were affected and over 30,000 people were displaced. [30]

In **Nepal**, below- normal rainfall was observed across major parts of the country during monsoon season which caused lower paddy plantation areas than previous year, particularly, in Madhesh province. Heavy rains on 13 August 2023 caused floods in Mustang district, Gandaki province, where 35 families were displaced and 29 houses fully damaged. [31]

In the **Philippines**, cyclone Saola by the end of August 2023 caused floods, landslides and strong winds across six regions in the northern part with 8,000 people affected. [32].

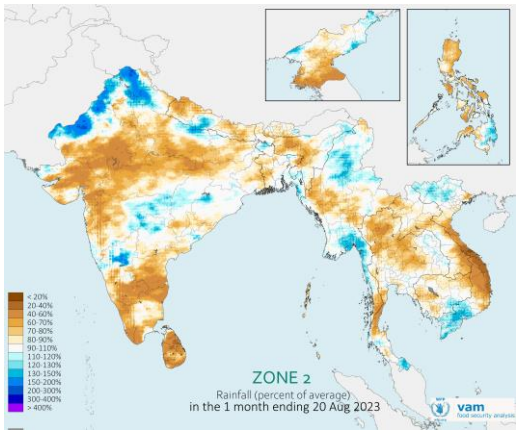
MAP 7: LAST THREE MONTHS

20 MAY 2023 — 20 AUG 2023



MAP 8: LAST MONTH

20 JUL 2023 - 20 AUG 2023



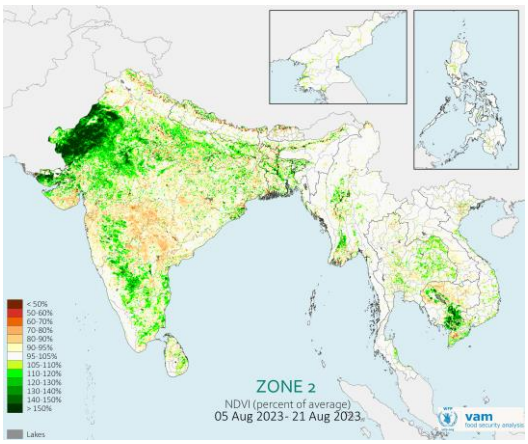
Vegetation Index

Vegetation index varied greatly in different countries across Zone 2 in recent weeks

The vegetation index for 5-21 August 2023 was observed to be above-average in major parts of western India due to monsoon rainfall between June-August 2023.

In contrast, below-average vegetation continued in some parts of northern Bhutan, northern Cambodia, northern Nepal and central India, due to below-average rainfall and above-average temperature (Map 9).

MAP 9: NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 5– 21 August 2023



Zone 2

Bangladesh, Bhutan, Cambodia, India, Lao PDR, Myanmar, Nepal, Philippines, and Sri Lanka

Crop Production

In **Bangladesh**, planting of the Aman season rice was in the tillering and transplanting stage under good weather conditions except for flood-affected areas in Chattogram Division.[33] The 2023/24 output of rice is expected at 37 million mt – 4.2 percent higher than the five-year average for 2018-2022 due to expansion in planted areas.[34]

In **Cambodia**, growing of wet-season rice in August 2023 continued under good weather conditions thanks to sufficient water supply and sunshine.[35] The 2023/24 output of rice is estimated at 6 million mt – 3.7 percent higher than the five-year average for 2018-2022 due to good weather conditions.[36]

In **India**, the planting of Kharif season rice crops was in the tillering and transplanting stage under good weather conditions except for flood-affected areas in August 2023.[37] The 2023/24 output of rice is expected at 134 million tonnes – 7.2 percent higher than the five-year average for 2018-2022.[38]

In **Lao PDR**, the growing of wet-season rice was in the young panicle forming stage under good weather conditions with enough irrigation water supply in August 2023 except for flood–affected areas.[39] The 2023/24 output of rice is estimated at 1.96 million mt – 7.9 percent higher than the five-year average for 2018-2022.[40]

In **Myanmar**, the growing of wet-season rice was in the tillering state to panicle formation stage in August 2023 except for flood-affected areas. [41] The 2023/24 output of rice is estimated at 12.5 million mt – 0.2 percent lower than the five-year average for 2018-2022 due to insufficient irrigation water supply.[42]

In **Bhutan**, the growing of main-season maize and rice continued in August 2023 under light-to-moderate below-average rains. [43] The 2023/24 output of maize is estimated at 31,000 tonnes, 24.4 percent lower than the five-year average for 2018-2022 due to a reduction in the planted areas caused by insufficient irrigation supply and a similar level to the previous year.[44]

In **Nepal**, planting of rice continued in mid-August 2023 with lower planted areas than last year due to insufficient rainfall, particularly in southern plain areas as main rice plantation areas. The 2023/24 output of rice is expected at 3.65 million mt – slightly below the five-year average level (2018-2022).[45]

In the **Philippines**, growing of wet-season rice in August 2023 was in the maturing to harvesting stage under good weather conditions under fair to good weather conditions due to damage caused by the typhoon.[46] The 2023/24 output of rice is expected at 12.6 million mt – 2.9 percent higher than the five-year average for 2018-2022.[47]

In **Sri Lanka,** harvesting of Yala season maize and rice began in August 2023 under good weather conditions. [48] The total 2023/24 output of rice is estimated at 3.06 million mt – 0.4 percent higher than the five-year average for 2018-2022 due to increased planted areas and improved supply of chemical fertilizers.[49]

Zone 2

Bangladesh, Bhutan, Cambodia, India, Lao PDR, Myanmar, Nepal, Philippines, and Sri Lanka

Climate Outlook, September to November 2023

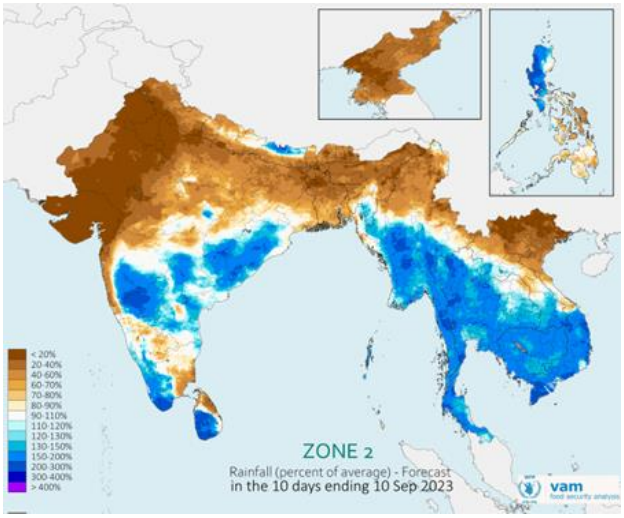
Mixed weather conditions are expected across zone 2 in the short term.

The short-term forecast for 1-10 September 2023 indicated above average rainfall in Cambodia, eastern India, southern Myanmar, southern Lao PDR, northern Philippines, and southern Sri Lanka (Map 10).

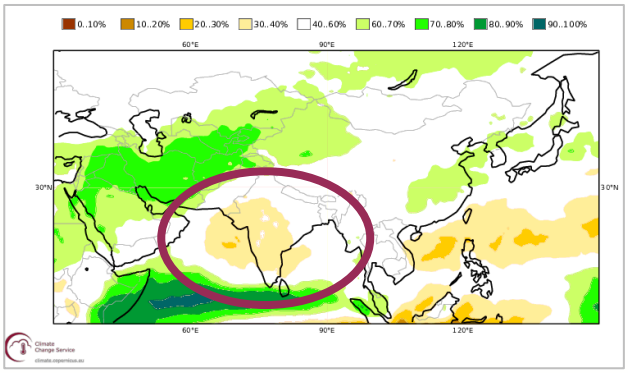
Rainfall during September-November 2023 is likely to be above normal conditions (70-80 percent possibility of exceeding the median rainfall) in southern Sri Lanka, while southern India and northern Philippines are likely to be below the normal conditions (Map 11).

Air temperature during September-November 2023 is likely to be above the normal conditions (>80 percent possibility of exceeding the median temperature) across major parts of Zone 2 (Map 12).

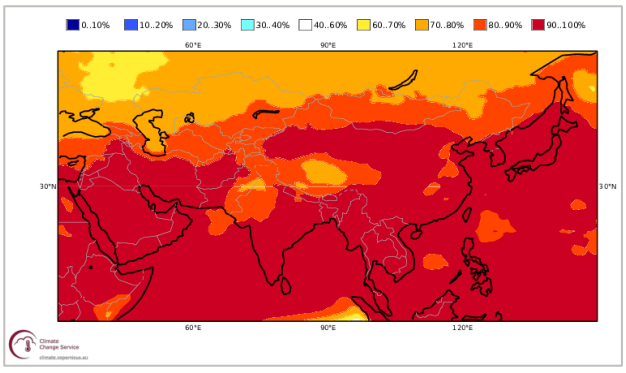
MAP 10: SHORT-TERM RAINFALL FORECAST AS A PERCENT OF AVERAGE, 1-10 SEP 2023



MAP 11. LONG-TERM RAINFALL FORECAST SEP-NOV 2023, PRECIPITATION > MEDIAN, %



MAP 12. LONG TERM TEMPERATURE FORECAST SEP-NOV 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 ASO 2023
Map 14: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC ASO 2023

Zone 3

Fiji, Indonesia, Kiribati, Papua New Guinea, Timor Leste, Tuvalu, Vanuatu

Rainfall Performance, May-August 2023

Rainfall during May-August 2023 (400-600 mm as monthly average) was above the historical average across most parts of Indonesia, some western parts of Papua New Guinea, Solomon Islands and Vanuatu (Map 13).

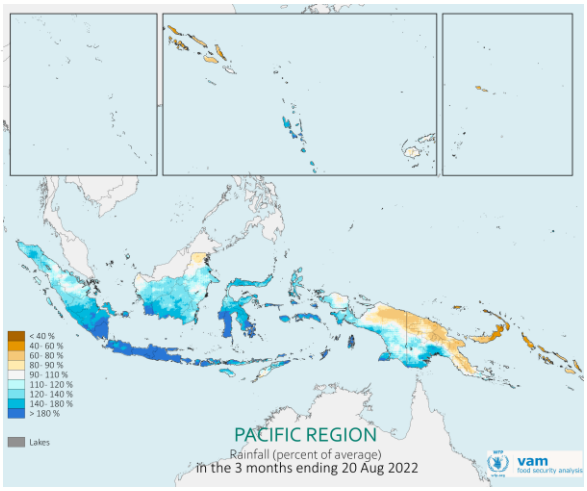
During **20 July-20 August 2023,** rainfall (200-400 mm per month on average) was above the historical average in central and eastern Indonesia, eastern Papua New Guinea and Solomon Islands (Map 14).

In **Indonesia**, heavy rains in August 2023 caused floods and landslides in West Sumatra, North Sumatra, and North Sulawesi, with 22,500 people affected and 3,600 houses damaged.[50] In West Sumatra, heavy rains affected 2,852 people (713 households) in Pesisir, Selatan District.[51]

In **Papua New Guinea**, three western provinces (Chimbu, Hela, Southern Highlands) continued under drought watch in August 2023.[52]

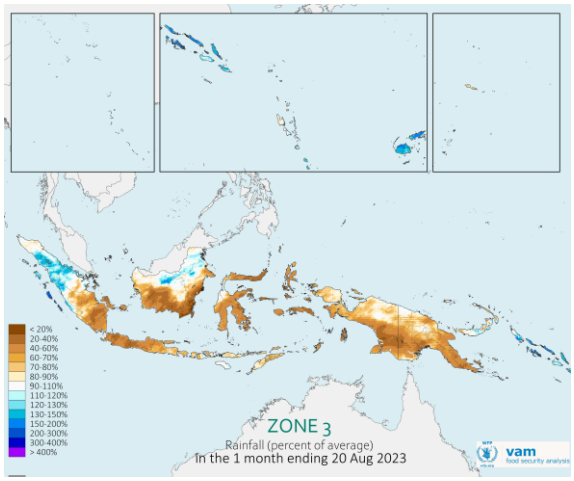
MAP 13: LAST THREE MONTHS

20 MAY 2023 — 20 AUG 2023



MAP 14: LAST MONTH

20 JUL 2023 - 20 AUG 2023

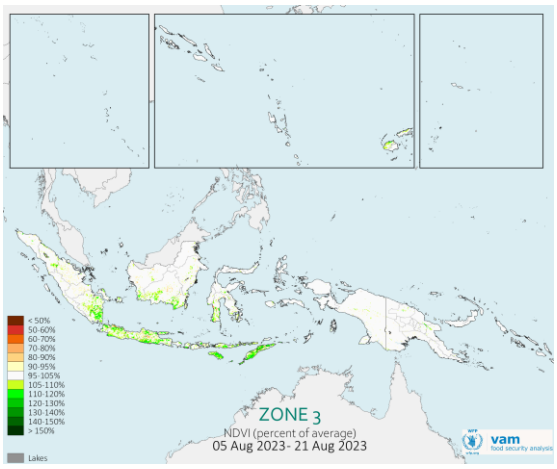


Vegetation Index

This zone had an average vegetation index in recent weeks

Near-average vegetation conditions were observed in most parts of Zone 3 between 18 June to 4 July 2023. Only a few areas in northern Fiji, Indonesia, and Timor-Leste have above-average vegetation conditions as heavy rains during the last three months improved crop growth conditions except in flood-affected areas (Map 15).

MAP 15: NORMALIZED DIFFERENCE VEGETATION INDEX (NDVI), 18 June-4 July 2023



Zone 3

Fiji, Indonesia, Kiribati, Papua New Guinea, Timor Leste, Tuvalu, Vanuatu

Crop Production

In **Fiji**, land preparation of sugarcane began in August 2023 under below normal rainfall conditions.[53] The 2023 output of rice is estimated at 12,000 tonnes, close to average, but the country needs to import about 40,000 tonnes in 2023. [54]

In **Indonesia**, growing of dry-season rice continued under good weather conditions and sufficient irrigation water supply.[55] The 2023/24 rice production is expected at 34.45 million tons, 0.3 percent higher than the five-year average level for 2018- 2022.[56]

In **Papua New Guinea**, the growing of main food crops (banana, sweet potato, and taro) in August 2023 continued under below-normal rainfall conditions. [57] The 2023/24 output of palm oil is expected at 800,000 tonnes, 14.3 percent higher than the five-year average level for 2018-2022.[58]

In **Timor-Leste**, the growing of off-season rice continued under below-normal rainfall in August 2023.[59] The total 2022/23 output of rice is estimated at 86,000 tonnes, 66 percent of the national target. The country needs 130,000 tonnes of rice to feed the 1.3 million population annually. [60]

Zone 3

Fiji, Indonesia, Kiribati, Papua New Guinea, Timor Leste, Tuvalu, Vanuatu

Climate Outlook, September to November 2023

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

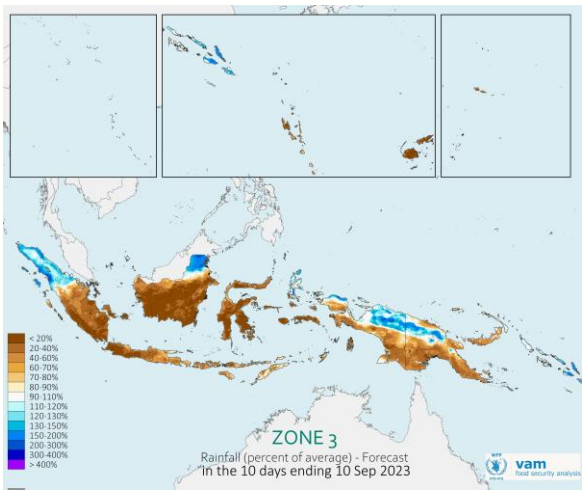
The short-term forecast during 1-10 September 2023 indicated that above-average rainfall in eastern Sumatra and Papua of Indonesia. In contrast, major parts of Indonesia and Papua New Guinea were expected to experience drought conditions (Map 16).

Forecasts for September-November 2023 show below-average rainfall conditions (<30 percent possibility of exceeding the median rainfall average) across Fiji, Indonesia, Papua New Guinea, Timor Leste, Tonga and Vanuatu.

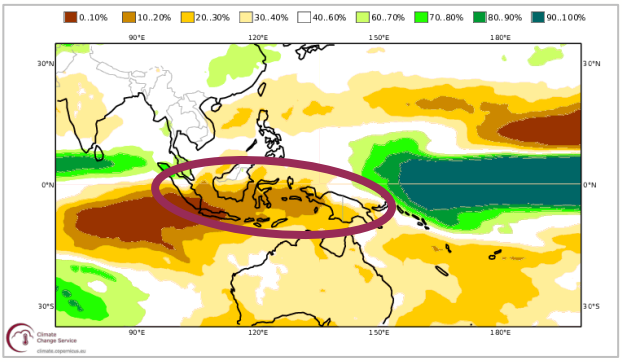
In contrast, the islands closer to the Equator such as Kiribati, Nauru, Solomon Islands and Tuvalu are likely to experience very wetter than average conditions (>90 percent possibility of exceeding the median rainfall average) (Map 17).

Air temperature during September-November 2023 is likely to be higher than average across this zone (greater than 80 percent possibility of exceeding the median temperature) (Map 18).

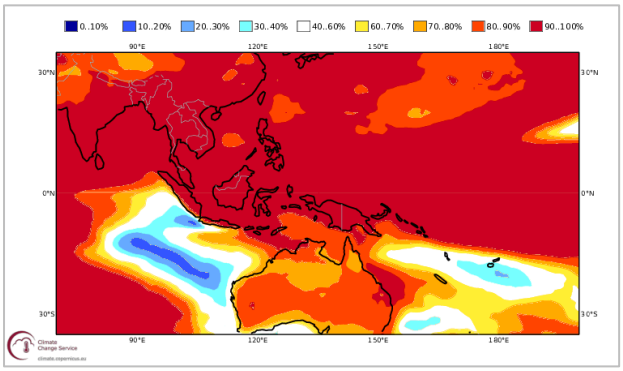
MAP 16: SHORT-TERM RAINFALL FORECAST AS A PERCENT OF AVERAGE, 1-10 SEP 2023



MAP 17. LONG-TERM RAINFALL FORECAST SEP-NOV 2023, PRECIPITATION > MEDIAN, %



MAP 18. LONG-TERM TEMPERATURE FORECAST SEP-NOV 2023, 2m TEMPERATURE ABOVE MEDIAN, %

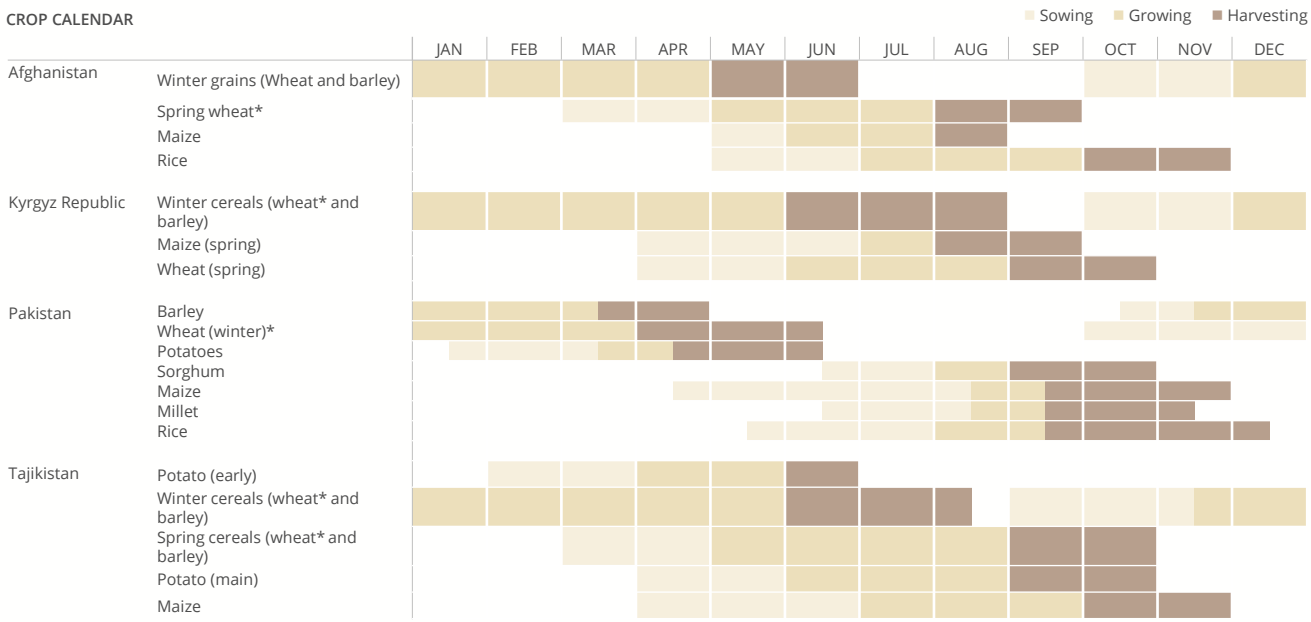


Map 20: C3S multi-system seasonal forecast probability (precipitation > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC ASO 2023
Map 21: C3S multi-system seasonal forecast probability (2m temperature > median), nominal forecast, ECMWF/Met Office/Meteo-France/CMCC/DWD/NCEP/JMA/ECCC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

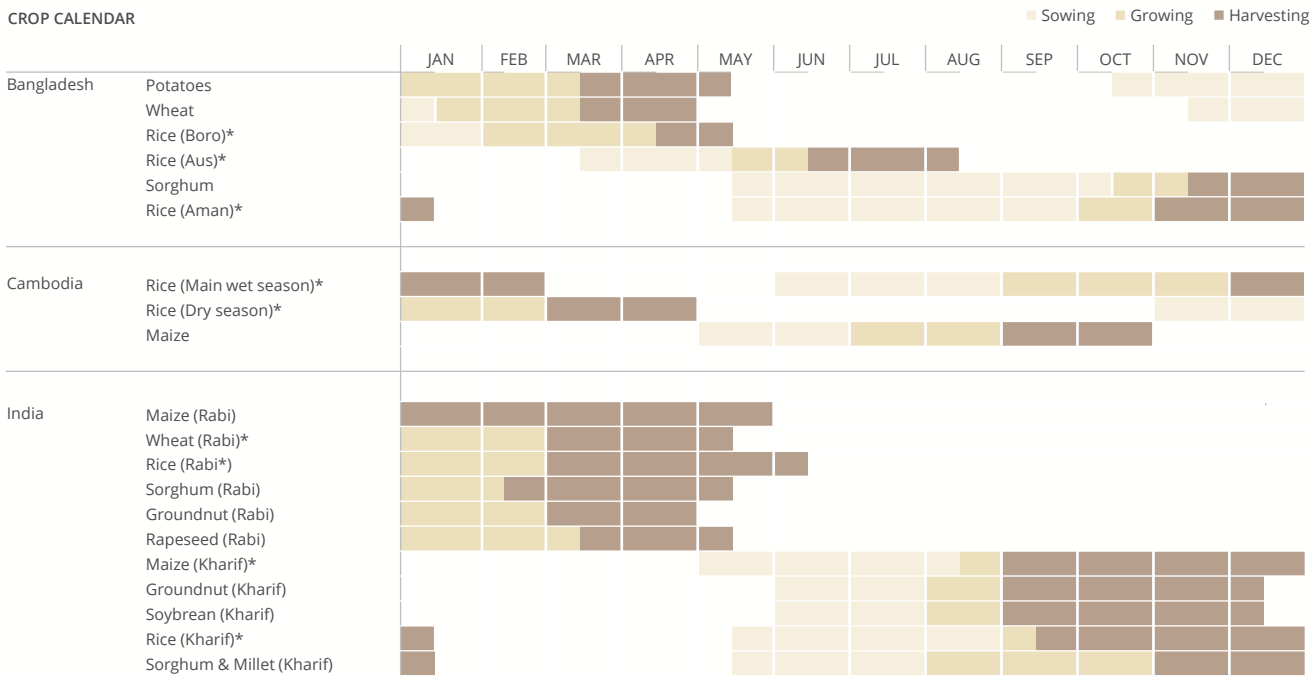
Annexes

Crop Calendar

Zone 1: Afghanistan, Kyrgyz Republic, Pakistan, and Tajikistan



Zone 2: Bangladesh, Bhutan, Cambodia, India, Lao PDR, Myanmar, Nepal, Philippines, and Sri Lanka

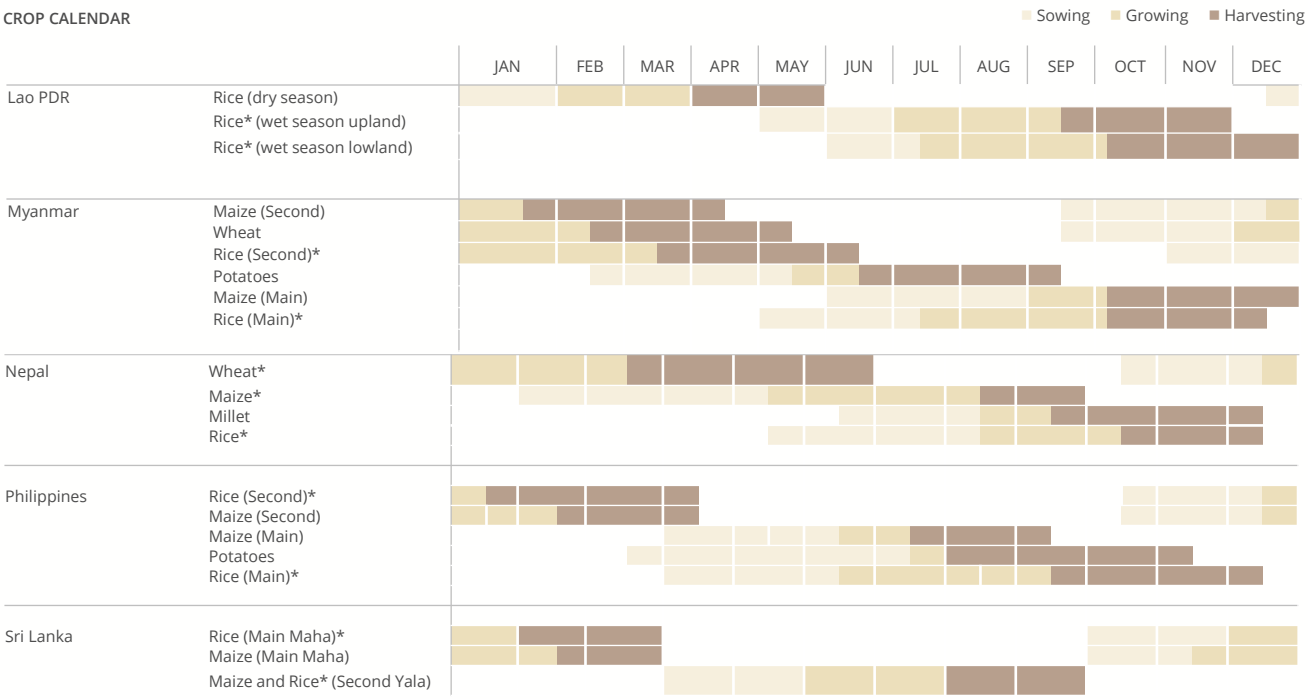


Source: FAO/GIEWS, FEWSNET. Periods are rounded to half-months.

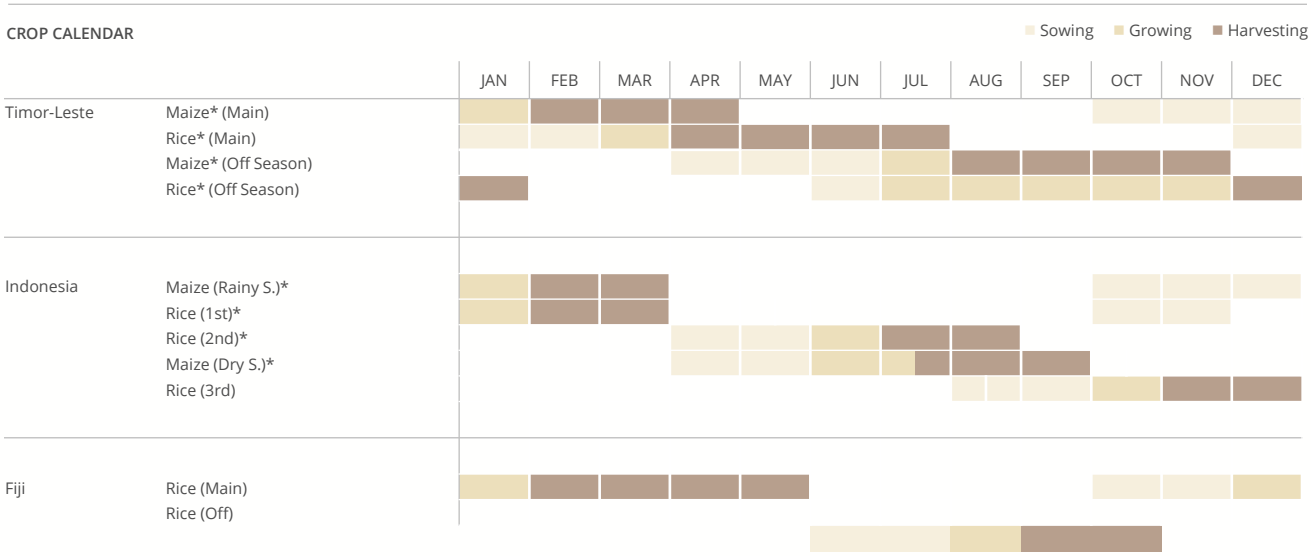
Annexes

Crop Calendar

Zone 2: Bangladesh, Bhutan, Cambodia, India, Lao PDR, Myanmar, Nepal, Philippines, and Sri Lanka



Zone 3: Fiji, Indonesia, Kiribati, Papua New Guinea, Timor Leste, Tuvalu, Vanuatu



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

Annexes

RBB Countries Rainfall Seasonal Pattern

Year		2023																																					Average annual rainfall (mm)	Accumulative rainfall variation by July 2023(%)	Accumulative r ainfall variation by July 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	-34.15	-19%
	Kyrgyz Republic																																					394.5	-87.04	-34%
	Pakistan																																					227.0	28.41	22%
	Tajikistan																																					323.3	-91.22	-38%
Zone 2	Bangladesh																																					2,330.7	-312.19	-26%
	Bhutan																																					893.5	-128.63	-26%
	Cambodia																																					1,964.8	-103.87	-12%
	India																																					1,098.9	-21.63	-5%
	Lao PDR																																					1,838.2	-148.35	-17%
	Myanmar																																					2,090.0	-197.55	-20%
	Nepal																																					1,384.7	-133.18	-20%
	Philippines																																					2,685.6	149.85	12%
	Sri Lanka																																					1,792.5	7.73	1%
Zone 3	Fiji																																					2, 251.6	-106.26	-7%
	Indonesia																																					2,820.7	107.79	7%
	Timor-Leste																																					1,749.4	73.72	6%

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.

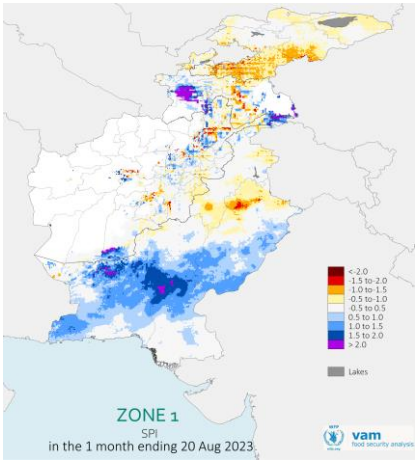
Rainfall > 100 mm

Annexes

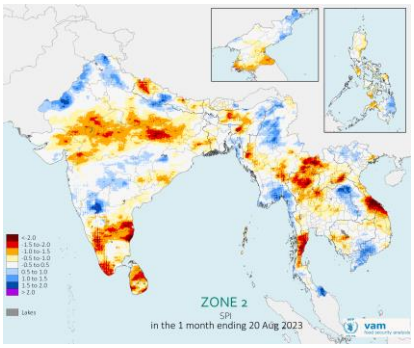
Standardized Precipitation Index, 21 Jul-20 Aug 2023

The maps (19, 20,21) show last month's standardized precipitation index (SPI). The SPI shows the experience of wet conditions on one or more time scales (blues-dark purple), and dry conditions (yellow-browns) in Asia and the Pacific.

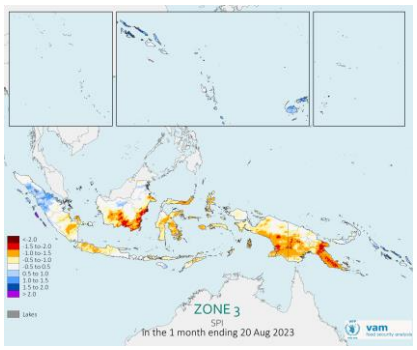
MAP 19: SPI ZONE 1 LAST MONTH



MAP 20: SPI ZONE 2 LAST MONTH



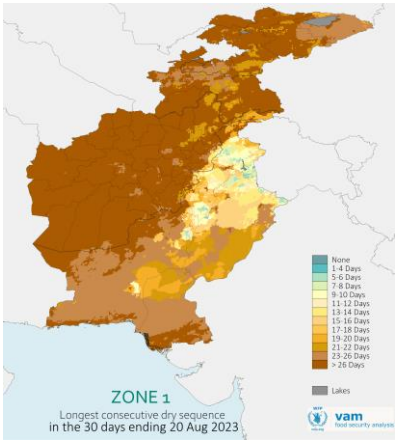
MAP 21: SPI ZONE 3 LAST MONTH



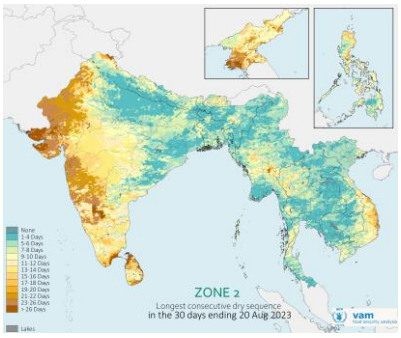
Longest Consecutive Dry Sequence, 21 Jul-20 Aug 2023

The maps (22, 23,24) show the longest consecutive dry sequence over the past month. Areas in green have experienced shorter dry sequences, while areas in brown have experienced longer ones.

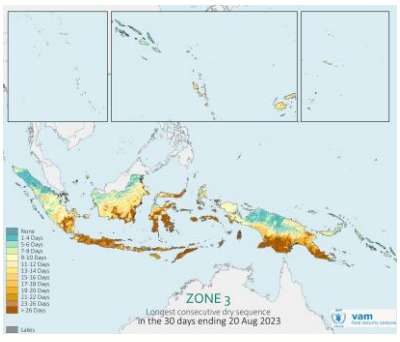
MAP 22: LONGEST CONSECUTIVE DRY SEQUENCE ZONE 1 LAST MONTH



MAP 23: LONGEST CONSECUTIVE DRY SEQUENCE ZONE 2 LAST MONTH



MAP 24: LONGEST CONSECUTIVE DRY SEQUENCE ZONE 3 LAST MONTH



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 to their geographical location (latitude, longitude) and climate (rainfall and temperature). This classification does not correspond to any official subregions or categories

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