



Photo by Fisk/Pexels

# INDONESIA



## Impact Monitoring of Hydrometeorological Hazards

January - March (Q1) 2022

April 2022

A joint bulletin by:



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# Key Messages

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**Climate Situation Q1 2022 :** From January to March, due to La Niña, rainfall across Indonesia was generally higher than the thirty-year long-term average. Most provinces experienced an increase in rainfall except for three provinces in the western part of Jawa (Banten, DKI Jakarta and Jawa Barat). Although its effects still persist, the La Niña phenomenon is expected to become weaker in the coming months as it has already past its peak. Rainfall is anticipated to decrease between April and June.

**Impact of Climate and Hydrometeorological Disasters on Agriculture :** The Ministry of Agriculture (MoA) reported that floods and pests were the primary causes of paddy crop disturbance from December 2021 to February 2022. Both combined affected almost 150,000 hectares of paddy fields. A quarter of the paddy fields which were affected by floods resulted in crop failures. Less than 1% of paddy crop failures were caused by pests. The majority (96%) of paddy crop failures from December 2021 to February 2022 were caused by floods. The total area of paddy crop failures during this period reached 19,000 hectares, which was 65% lower compared to failures recorded between December 2020 and February 2021.

**Rice Production Jan - Apr 2022 :** Statistics Indonesia (BPS) reported that rice production in Indonesia between January and April reached 25.4 million tonnes. Compared to the same period in the previous year, the harvested area and rice production increased by 8.5% and 7.7% respectively. The province of Jawa Barat, one of the top three main rice-producing provinces in Jawa, shows a significant increase of more than 10% in rice production. The price of rice remained relatively stable over the past 12 months, although the price of unhusked rice (paddy) experienced significant volatility.

**Food Commodity Prices:** The price of several commodities such as chilli, bird's eye chilli and shallot were volatile over the past 12 months mainly due to floods, which lowered the supply and triggered a high demand. At the same time, a low supply of vegetable oil created a high demand and thus sharply increased the price of this commodity throughout 2021. The price of vegetable oil decreased in early 2022 after the government imposed a ceiling price on the market, but increased again when the government removed it in March 2022.

**Climate Outlook – Q2 2022 :** As La Niña has already passed its peak, most areas in Jawa, Sumatera, Kalimantan, Nusa Tenggara and Papua are likely to experience less precipitation between April and June. However, within this period Jawa and Nusa Tenggara are likely to encounter rainfall above normal condition compared to the long-term average.



# Media Reports

## Terendam Banjir, Ratusan Hektar Sawah Di Kabupaten Serang Terancam Puso

postangs | 04 March 2022, 13:56 pm | 0 comments | 13 Views



(04/03/2022) POSTANGSEL- Floods that hit Serang District, on Tuesday, Mar 1<sup>st</sup> 2022, submerged 449.5 hectares of paddy fields that have been planted. Losses are estimated at billions of rupiah.

The head of the Agriculture Service Serang, Zaldi Duhana, said that based on the latest data as of Thursday, Mar 3<sup>rd</sup> 2022, hundreds of hectares of paddy fields in the Serang District were flooded [1].

Kompas.com / Wilen / Wilen

## BMKG Sebut Curah Hujan di Bulan Maret hingga April Masih Tinggi

Kompas.com - 13/03/2022, 09:46 WIB

(13/03/2022) KOMPAS - According to the Meteorology, Climatology and Geophysics Agency (BMKG) for the months of March and April, the chance of rain is still quite high (above 150 mm per month). This is likely to occur almost evenly throughout Indonesia. [2].

## Januari Hingga April 2022, BPS: Produksi Padi Akan Meningkatkan 7,7 Persen

Rabu 02 Mar 2022 11:40 WIB

Isi: Hira Muhammad



(02/03/2022) REPUBLIKA.CO.ID - The Central Statistics Agency (BPS) stated that for the period from January to April 2022, rice production is estimated to increase by 7.7 percent (equivalent to 14.63 million tonnes) compared to the same period in 2021 when production amounted to 13.58 million tonnes. [3]

## Program Asuransi Pertanian Berbasis AYI Diuji Coba di Kabupaten Karawang

Reporter: Antara  
Editor: Ali Akhmad Noor Hidayat

Kamis, 10 Maret 2022 04:36 WIB

(10/03/2022) Tempo - The central government officially launched the Area Yield Index (AYI)-based agricultural insurance programme in Karawang Regency, Jawa Barat. Acting ASDA 2 Karawang Government, Hanafi said the trial of AYI-based agricultural insurance was carried out by the Ministry of National Development Planning of the Republic of Indonesia/National Development Planning Agency (Kemen PPN/Bappenas). [4]

## Subsidi Minyak Curah Dorong Peredaran Minyak Goreng Oplosan

Sabtu, 19 Maret 2022 17:00

Reporter : Sulaeman



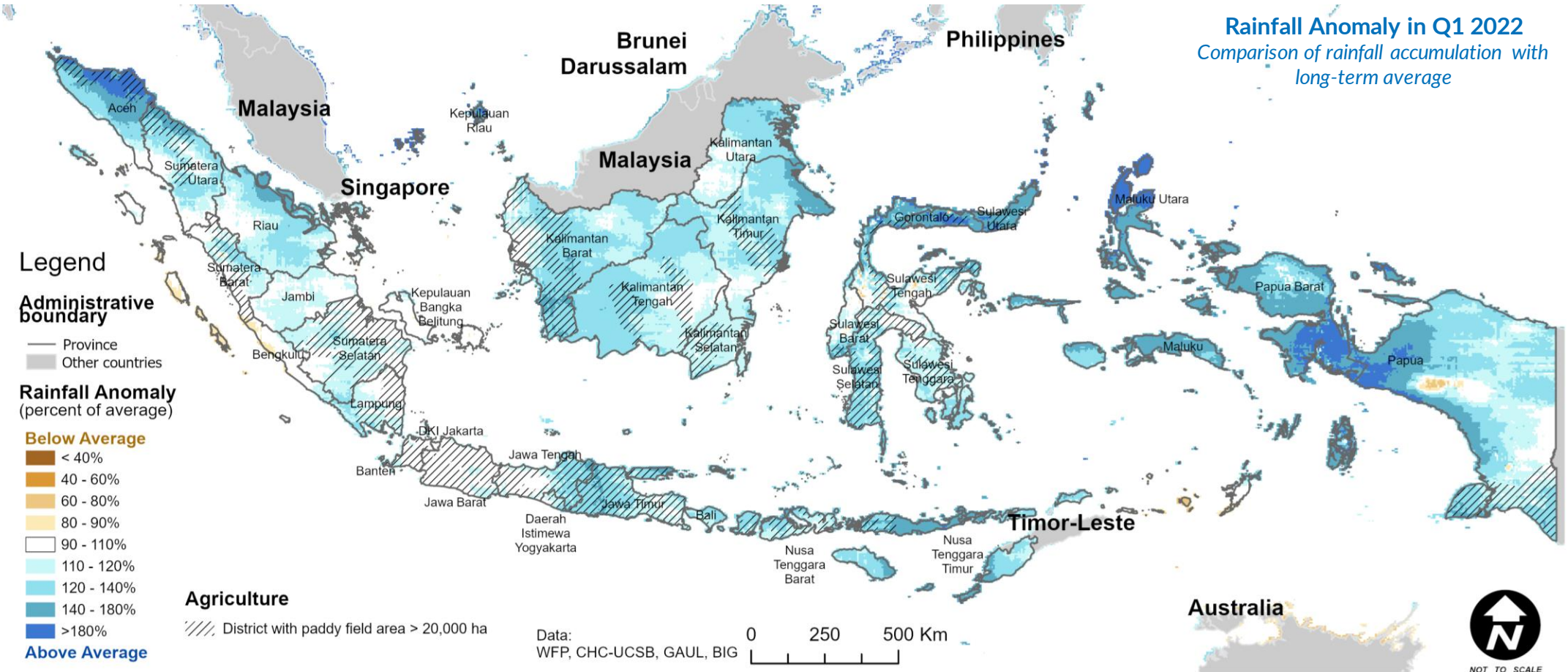
Agen Minyak Goreng Curah di Tengah Kelangkaan. ©2022 Merdeka.com/Isqbal S Nugroho

(19/03/2022) Merdeka - The Government issued the Regulation of the Minister of Industry (Permenin) No. 8 of 2022 concerning the provision of bulk cooking oil to meet the needs of the community, micro and small businesses in the financing framework by BPDPKS [Palm Oil Plantation Fund Management Agency].

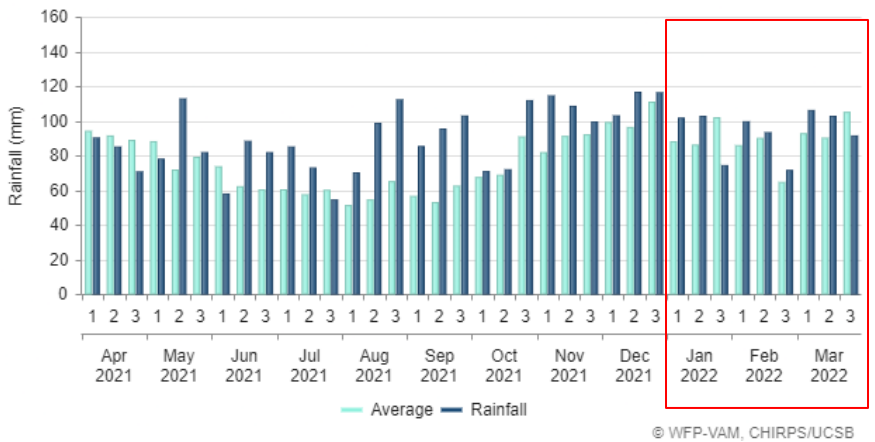
According to the Regulation, packaged cooking oil producers are asked to also produce bulk cooking oil so that it remains available in the market, amidst rising prices. However, the selling price follows the price set by the government (highest retail price/HET).

The provision of bulk cooking oil will help meet the needs of the community for 6 months. This policy may be extended by the Minister of Industry based on the outcomes of an upcoming coordination meeting with the BPDPKS steering committee. [5]

# Rainfall Anomaly: January – March 2022



**Rainfall Anomaly in Q1 2022**  
Comparison of rainfall accumulation with long-term average

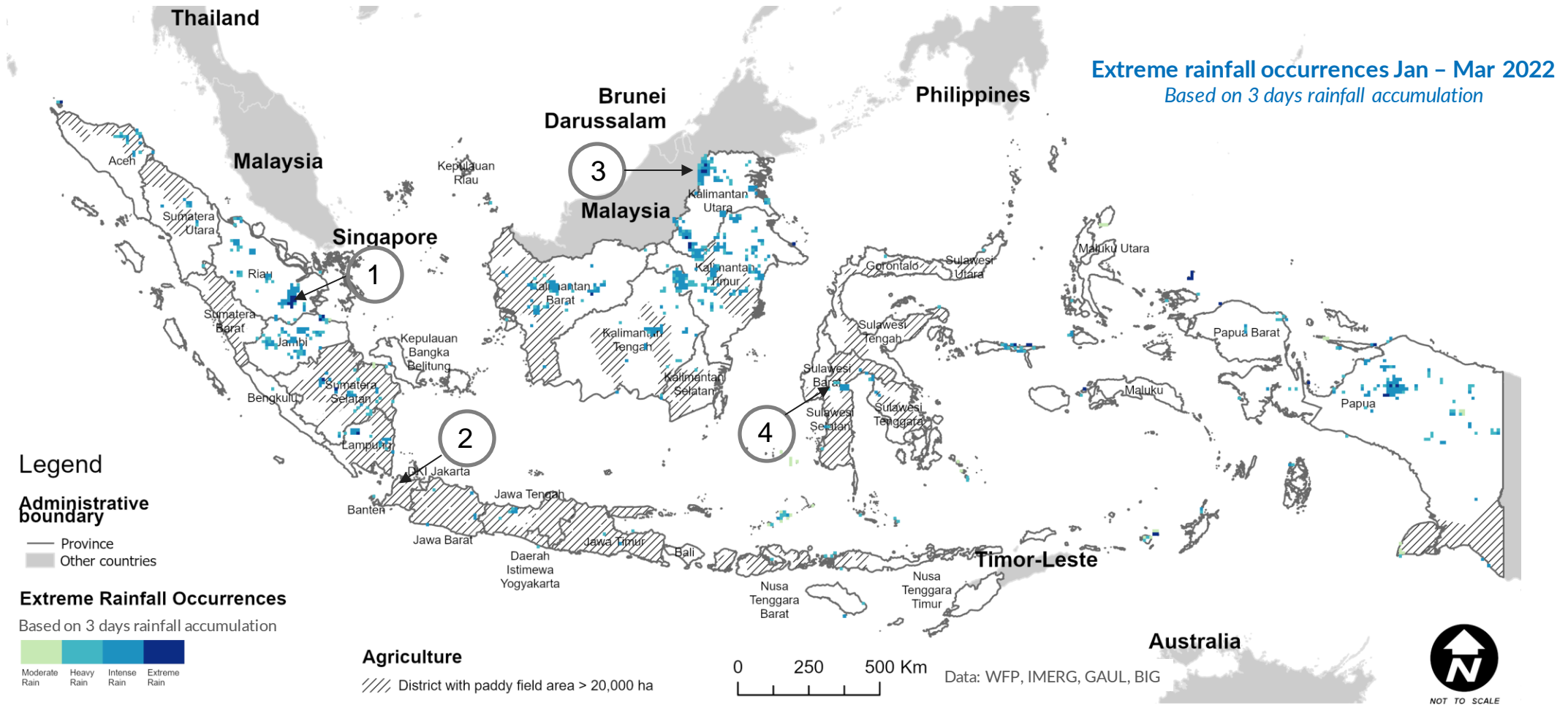


From Jan to Mar 2022, rainfall across Indonesia was generally higher than the long-term average (30 years), mainly due to La Niña. Areas in Aceh, Gorontalo, Maluku Utara, Papua Barat, and Papua experienced rainfall almost twice the amount of normal conditions. This triggered flood hazards in Kalimantan and Sulawesi [page 6]. Among all provinces, only Bengkulu, Banten, DKI Jakarta, and part of Jawa Tengah experienced a normal rainfall condition.

© WFP-VAM, CHIRPS/UCSB

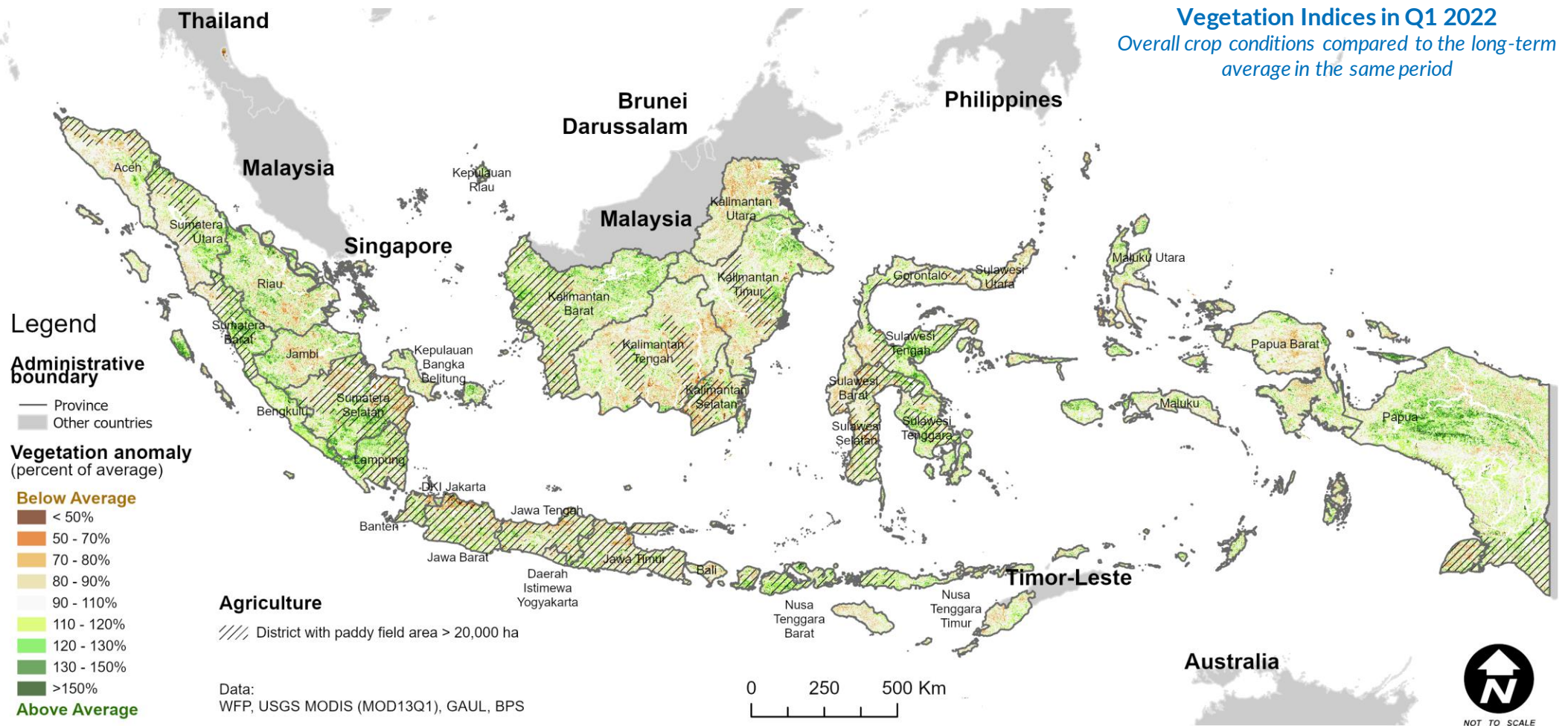


# Extreme Rainfall: Potential Flood Events



Heavy rainfall in a short period of time (3 days) may trigger floods and landslides. As shown on the map above, the incidence of extreme rainfall occurring between Jan and Mar 2022 was detected in Sumatera, Kalimantan, and Papua. These events are closely related to the La Niña phenomenon, which caused higher than normal rainfall across Indonesia. Extreme and intense rainfall occurred in Riau, Jambi, Sumatera Selatan, Kalimantan Barat, Kalimantan Tengah, Kalimantan Utara, and Papua. Localized extreme rains have caused floods, landslides and crop failures in several districts such as in Indragiri Hulu (1) [\[Link\]](#), Serang (2) [\[Link\]](#), Malinau (3) [\[Link\]](#), Luwu (4) [\[Link\]](#) (as indicated by circles in map).

# Crop Monitoring: Overall Vegetation Situation in Q1 2022

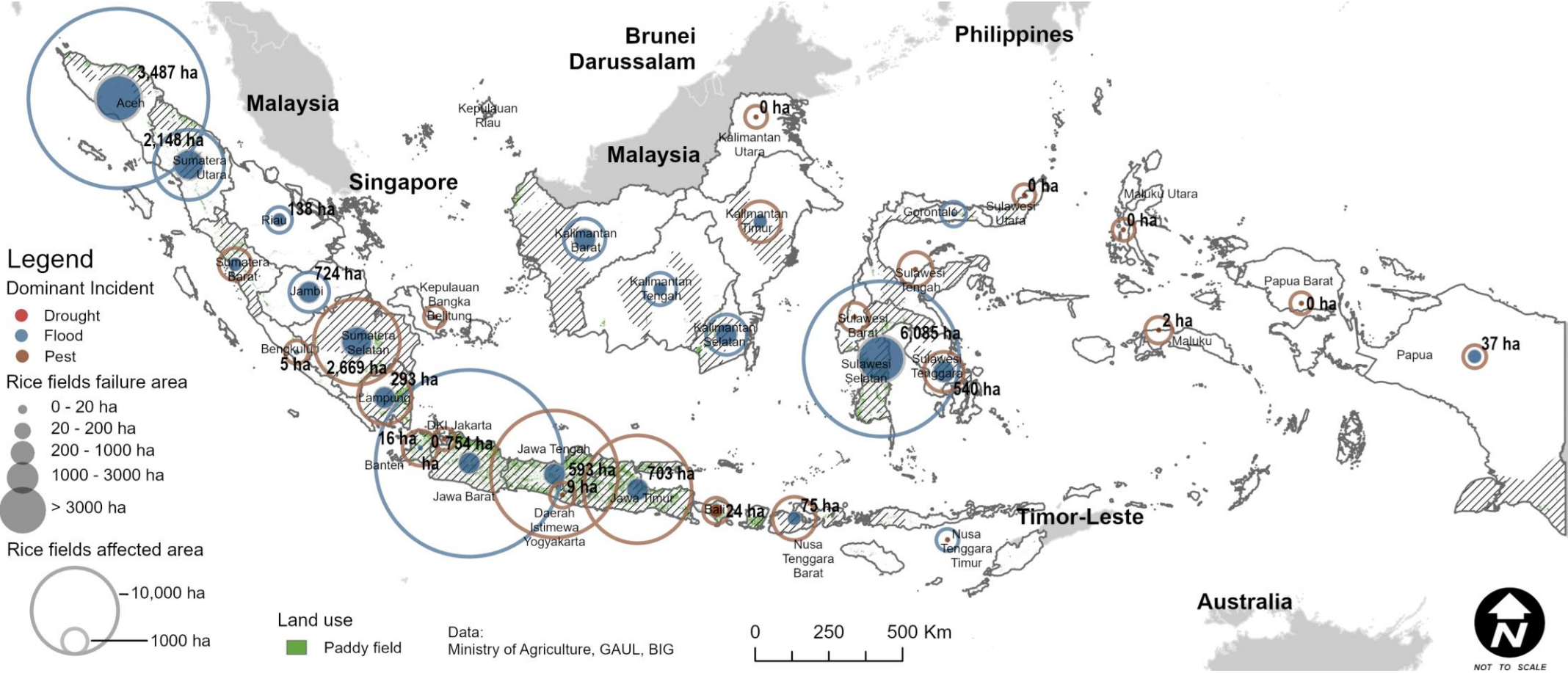


In Q1 2022, the Vegetation Index (VI) in most islands was found to be between normal and above average conditions compared to long-term data over the last twenty years. Higher VI figures represent an increase in vegetation greenness, which correlates with healthy vegetation or crops. The majority of islands in Indonesia showed a normal vegetation index. High VI were detected in several provinces in Sumatera, Kalimantan, and Sulawesi. Meanwhile, a slightly below normal VI was found in some areas, including the eastern part of South Sumatera and southern part of Papua, Kalimantan Utara, and Kalimantan Tengah.

# Paddy Crop Monitoring: Disturbances by Disasters and Pests

## Areas of Rice Cultivation Failure due to Floods, Droughts, and Pests Dec 2021 – Feb 2022

Based on Field Monitoring and Reports by the Ministry of Agriculture

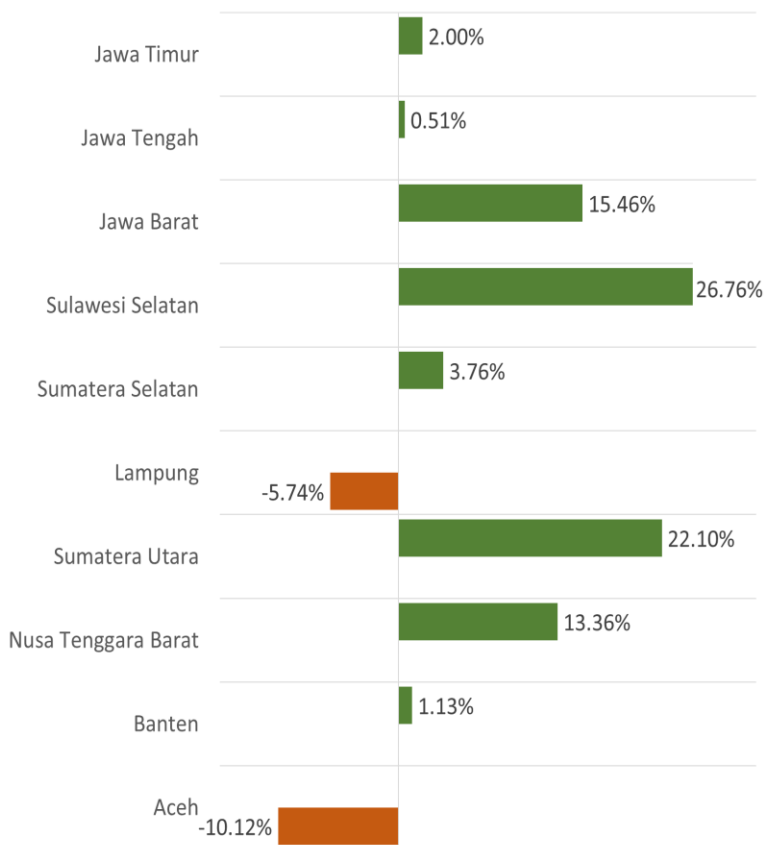


As reported by the Ministry of Agriculture, floods and pests were the primary cause of paddy crop disturbance between Dec 2021 and Feb 2022. Both combined affected almost 150,000 hectares of paddy fields across Indonesia within this period. Almost a quarter of paddy fields affected by floods resulted in crop failures. Less than 1% of crop failures were caused by pests. Highest paddy crop failures caused by floods were experienced in Sulawesi Selatan, Aceh, Sumatera Selatan, Sumatera Utara, and Jawa Barat. Overall, the total area of paddy crop failures between Dec 2021 and Feb 2022 reached 19,000 hectares, of which 96% were caused by floods. This was 36,000 hectares (65%) less than the crop failures during the period Dec 2020 to Feb 2021 when crop failures had reached 55,000 hectares.



# Paddy Crop Monitoring: Potential Climate Impact on Rice Production

Changes in top 10 main rice-producing provinces  
Jan- Apr 2021 and Jan - Apr 2022



## Top five provinces in rice production (Jan - Apr 2022):

1. Jawa Timur (± 2.74 million tonnes)
2. Jawa Tengah (± 2.63 million tonnes)
3. Jawa Barat (± 2.3 million tonnes)
4. Sulawesi Selatan (± 1.29 million tonnes)
5. Sumatera Selatan (± 0.77 million tonnes)

Total harvested areas per month (million hectares)  
2019 - 2022



Harvested paddy area (2021-2022),  
in million hectares

Jan - Apr 2021: **4.43**      Jan - Apr 2022\*: **4.81**

8.57%

Rice production (2021-2022),  
in million tonnes

Jan - Apr 2021: **23.58**      Jan - Apr 2022\*: **25.4**

7.71%

Despite the ongoing La Niña situation, the overall rice (paddy) production in Indonesia has significantly increased compared to the same period in 2021. Statistics Indonesia (BPS) estimates that rice (paddy) production between Jan and Apr 2022 increased by 1.8 million tonnes compared to the same period in 2021.

The chart on the left shows the changes in rice (paddy) production between 2021 and 2022 for the period Jan to Apr. Out of the top 10 main rice-producing provinces, highest production occurred in Sulawesi Selatan and Sumatera Utara, while the rice production in Lampung and Aceh decreased by more than 5% compared to the previous year. Among the top three main rice-producing provinces within Jawa, only Jawa Barat shows a significant increase of more than 10% in rice production. This is likely due to extreme rainfall events that occurred in these areas [page 6].

The chart on the top shows the harvested paddy areas in 2022 compared to previous years. It can be seen that the peak of the harvest period was in Mar, which was similar to 2019 and 2021.

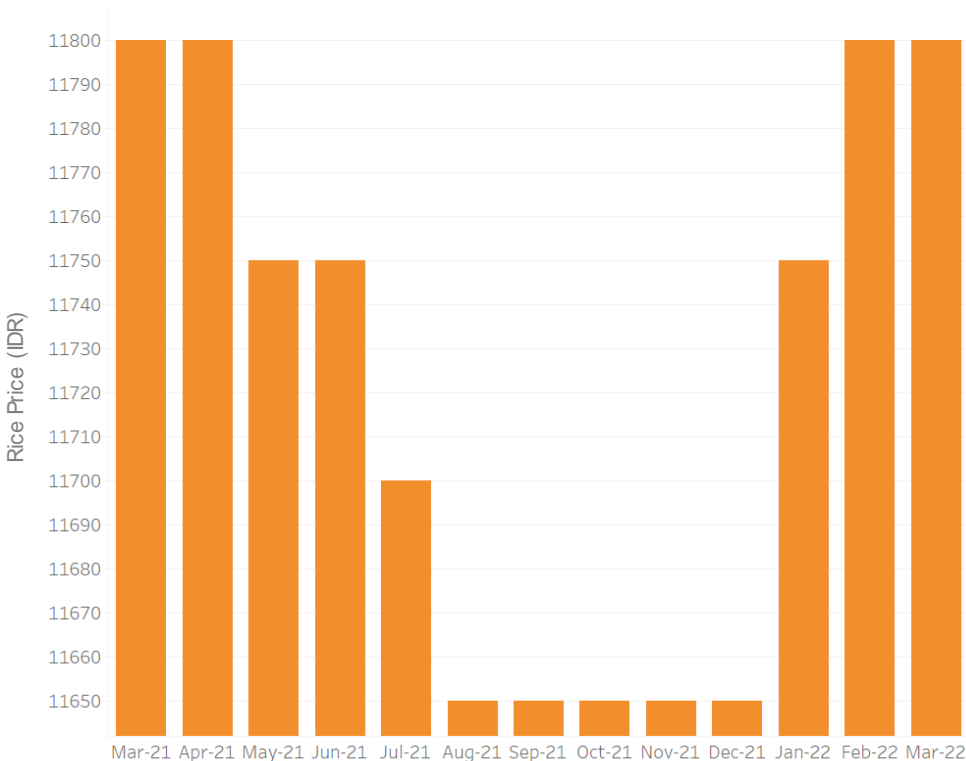
\*Rice production in Jan - Apr 2022 is estimated

# Paddy and Rice Prices Trends: March 2021- March 2022

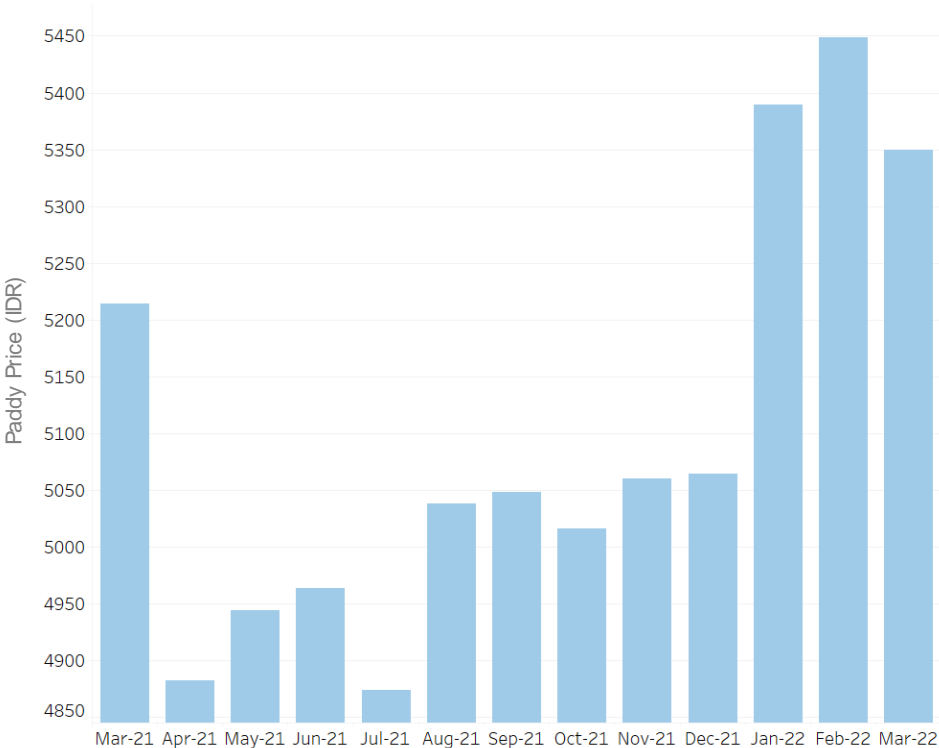
In 2021, the price of rice started to decline in May and reached lowest levels from Aug to Dec 2021, about 1.2% lower compared to the prices in Mar 2021. This was mainly due to high supply during the harvest season and lower demand. Following this period of low prices, the price of rice started to rise again in Jan 2022 and in Mar 2022, it reached the same price as Mar 2021.

The price of paddy (unhusked rice) at the farmer level was more volatile over the last 12 months. From Apr to Jul 2021, the prices of unhusked rice decreased due to high supply during the harvest season. During this period, high rain intensity causing floods influenced the rice moisture and decreased the quality which brought prices down. The price of unhusked rice started rising along with the price of rice at the beginning of 2022 before decreasing again in March 2022 due to the harvest season.

### Monthly Price of Rice



### Monthly Price of Paddy (unhusked rice)





# Food Commodity Prices: March 2021- March 2022

According to the National Strategic Food Price Information Centre (PIHPSN) of Bank Indonesia, the prices of chilli, bird's eye chilli and shallot recorded the most volatility in the last 12 months. While the price of vegetable oil increased significantly in 2021, it started to decrease during the last week of Jan 2022 due to the Government's implementation of a ceiling price. However, once the ceiling price was removed in Mar 2022, the price started to increase again.

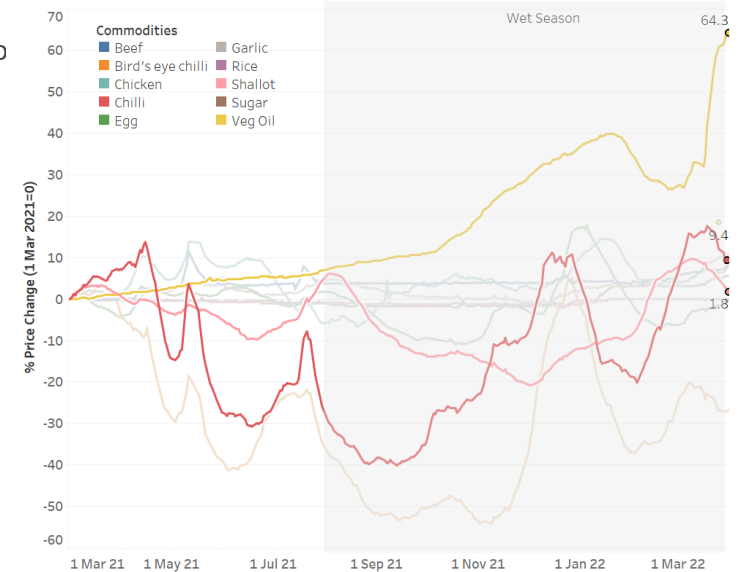
The weekly average price of chilli over the past twelve months was IDR 40,627 per kilo. The price fluctuation of chilli and bird's eye chilli tended to be similar throughout this period. The price of chilli started to reduce in Aug 2021 due to high supply during the harvest, with the lowest price recorded at IDR 28,250 per kilo or 40% lower than the price in early Mar 2021. The price of chilli started to rise at the end of Feb 2022 due to the wet season and high demand. High rainfall intensity caused floods, postponed the harvest period and affected chilli quality. Therefore, the increased price of chilli was mainly due to low production. The price of chilli decreased in Mar 2022 as the stock returned to normal.

The price volatility for shallots from Mar to Jul 2021 was mainly caused by stock fluctuation. The price started to reduce in Aug 2021 as the wet season began. This was mainly due to high rain intensity, which decreased the production quality and the price. Furthermore, the stock of shallots was still high due to the harvest season. The lowest price recorded was in Nov 2021 at IDR 27,300 per kilo and the highest was at the end of Feb 2022 at IDR 37,550, 8% higher than in the first week of Mar 2021. The price of shallot was increasing since Dec 2021, before starting to decrease in Mar 2022.

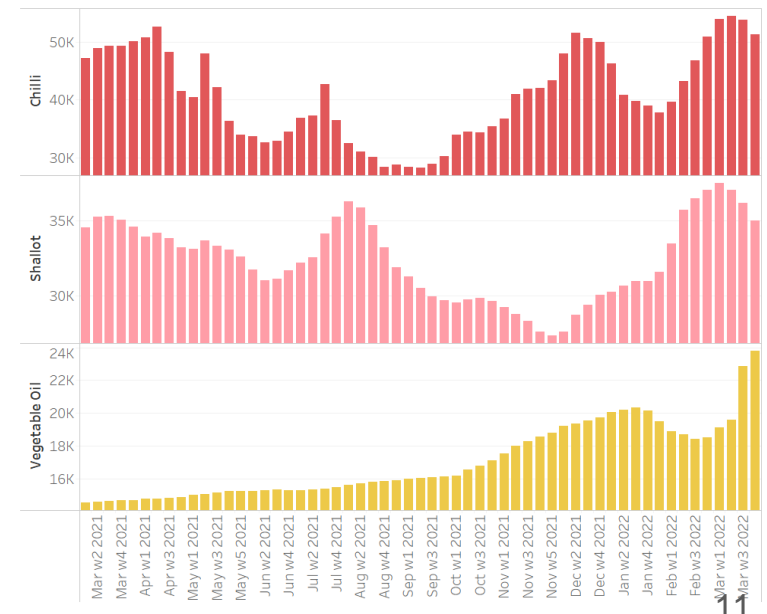
The price of vegetable oil experienced a sharp rise in 2021. This was mainly influenced by low supply and high demand. The Government of Indonesia set the ceiling price of vegetable oil at IDR 14,000 per litre on 19th Jan, but then removed it on 16 Mar 2022. Vegetable oil reached its highest mark at IDR 20,350 per litre in the third week of Jan 2022, which represented a 39% increase compared to the same period in the previous year. However, the market price of vegetable oil was still higher than IDR 14,000 due to limited stocks. Hence, the Government removed the ceiling price in Mar 2022 to overcome the stock scarcity, which resulted in increasing prices again.\*

\* A separate report with in-depth analysis of food prices and their trends will be produced by the WFP Country Office in May 2022.

## National Food Commodities Price Trend



## National Weekly Food Commodities Price Trend



# Food Stocks : March 2022

Nationally, food stock availability of 10 commodities is sufficient to fill consumption needs but stock durations vary by commodity.

Based on the data published on the Food Stock Monitoring System (Simonstok) of the National Food Agency (Bapanas), in the 4<sup>th</sup> week of Mar 2022, the food stock availability of 10 commodities was sufficient to meet consumption needs at national level. However, the stock duration varies by food commodity. The national stocks of rice, garlic and maize are adequate for the next two months, while beef and chicken are sufficient for around one month. Other food commodities such as sugar, shallots, and eggs can meet the national consumption for at least 2-3 weeks. Both chilli and bird's eye chilli only last for about one week. Due to limited stocks, several commodities might experience shortages which may lead to higher prices during Ramadan.

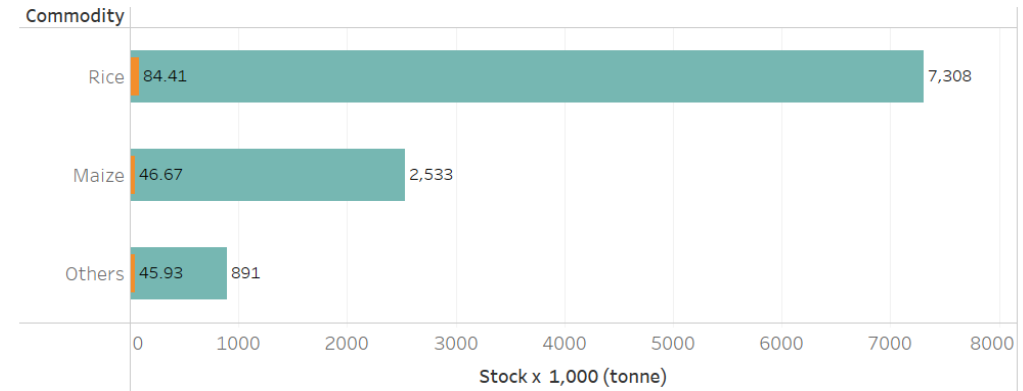
Commodity*	Stock availability (tonnes)	Stock need per day (tonnes)	Stock duration** (days)
Rice	7,308,249	84,412	87
Garlic	26,419	1,655	64
Maize	2,533,320	46,674	54
Beef	57,794	1,666	35
Chicken	233,283	8,825	26
Sugar	183,837	9,496	19
Shallot	46,567	3,190	15
Egg	209,955	14,831	14
chilli	26,419	2,969	9
Bird's eye chilli	26,269	2,926	8

**Note:**

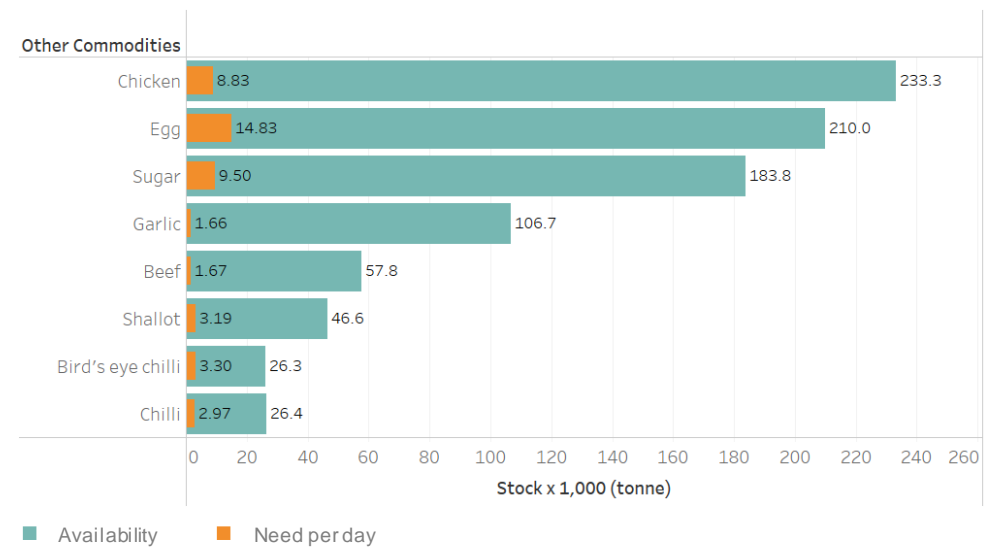
\* The information on stock availability and needs of vegetable oil is currently unavailable on Simonstok

\*\*Stock duration = stock availability / stock need per day

Main Food Commodity Stocks (tonnes) - number of days (4<sup>th</sup> Week of Mar 2022)



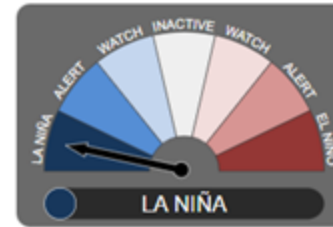
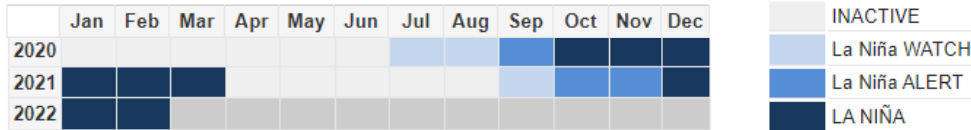
Other Food Commodity Stocks (tonnes) - number of days (4<sup>th</sup> Week of Mar 2022)



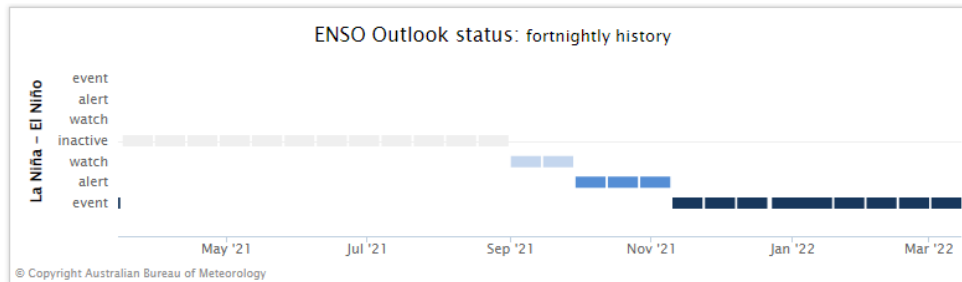


# El Niño–Southern Oscillation (ENSO) Outlook

## Monthly ENSO Outlook values



As of Mar 2022, Indonesia was still exposed to La Niña. Although some effects are persisting, they are expected to become weaker in the coming months.

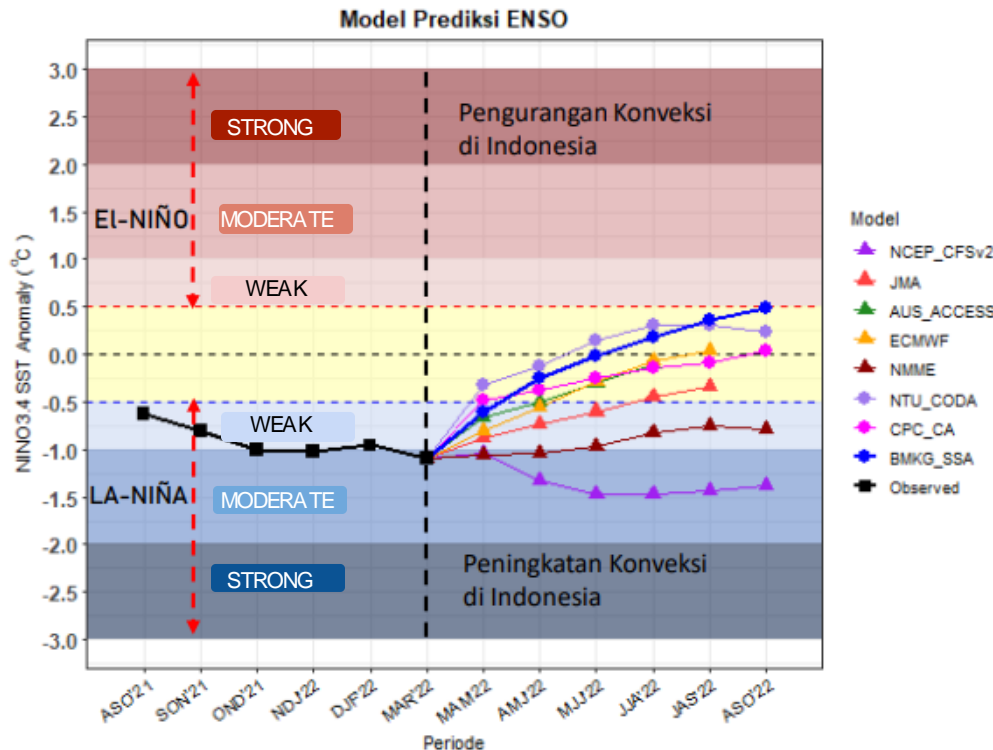


## Analysis on ENSO

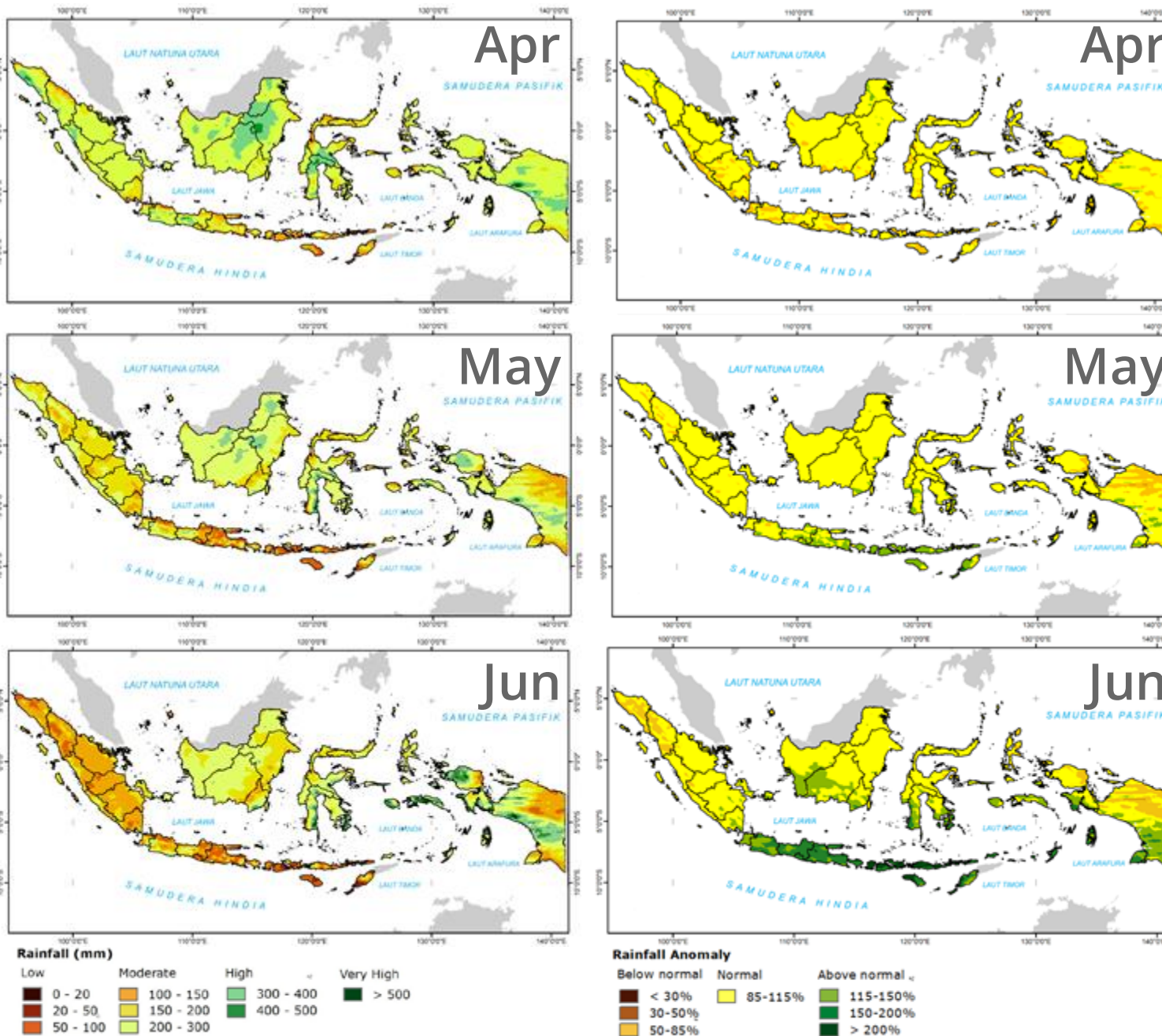
The rainfall variability in Indonesia is generally influenced by El Niño–Southern Oscillation (ENSO). This condition affects global air circulation which causes more moist air to flow from the Pacific Ocean towards Indonesia. Consequently, it often causes heavy rains and increases the potential of floods.

The historical observation (top left of diagram) shows that a La Niña event continued to prevail from 2020 until recently. The ENSO index is used to identify La Niña or El Niño as well as the rainfall patterns associated with these climate phenomena. Between Dec 2021 and Feb 2022, Indonesia was affected by La Niña. The ENSO Index on the bottom left chart was -1.03 in Mar 2022, which shows that Indonesia was still under moderate La Niña condition.

BMKG predicts that the ENSO Index will gradually move to neutral phase between Apr-Jun 2022 as La Niña has already past its peak. It is predicted that the effects of La Niña will be weaker. The latest oceanic observations and several model outputs also show similar forecasts. The forecast results of the neutral ENSO index suggest that there will be less rainfall occurrence in Indonesia.



# Climate Outlook Q2 2022: BMKG Rainfall Forecast



Based on BMKG forecasts, the total monthly precipitation in Indonesia will gradually decrease during the period Apr-Jun 2022 due to the weakening effect of La Niña.

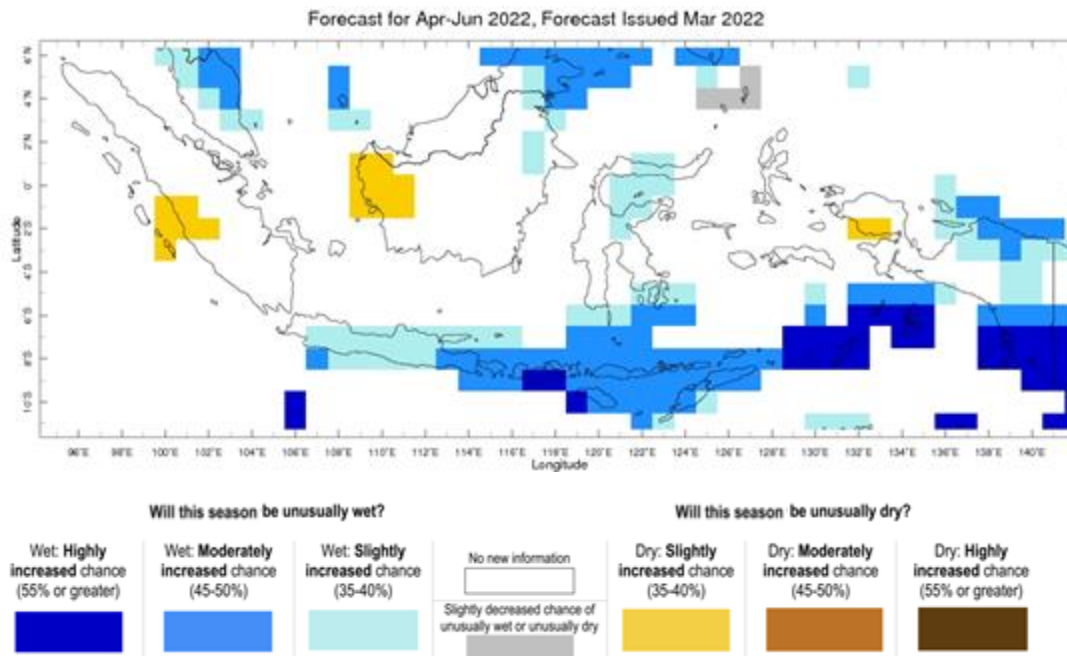
In Apr, the total precipitation is expected to be varying across the country. Most provinces are predicted to have moderate to high precipitation, but still be within the range of normal rainfall condition compared to the long-term average. Rainfall below normal condition is expected in only a few areas in Jawa, Nusa Tenggara and Sumatera.

Most of Sumatera, Jawa, Nusa Tenggara and some areas in Papua are expected to experience low to moderate rainfall in May. However, some areas in Bali, Nusa Tenggara, Jawa Tengah and Jawa Timur may have rainfall above normal compared to the long-term average. Meanwhile, Kalimantan, Sulawesi and Maluku are expected to have moderate to high precipitation, but within the range of normal rainfall anomaly.

In Jun, low rainfall is predicted to occur across Sumatera, Nusa Tenggara, Jawa Timur and eastern areas of Papua. Rainfall above normal condition is predicted mainly for Jawa, Nusa Tenggara, south-west parts of Kalimantan, southern Sulawesi and Papua.



# Climate Outlook Q2 2022: Indonesia in Global Rainfall Forecast

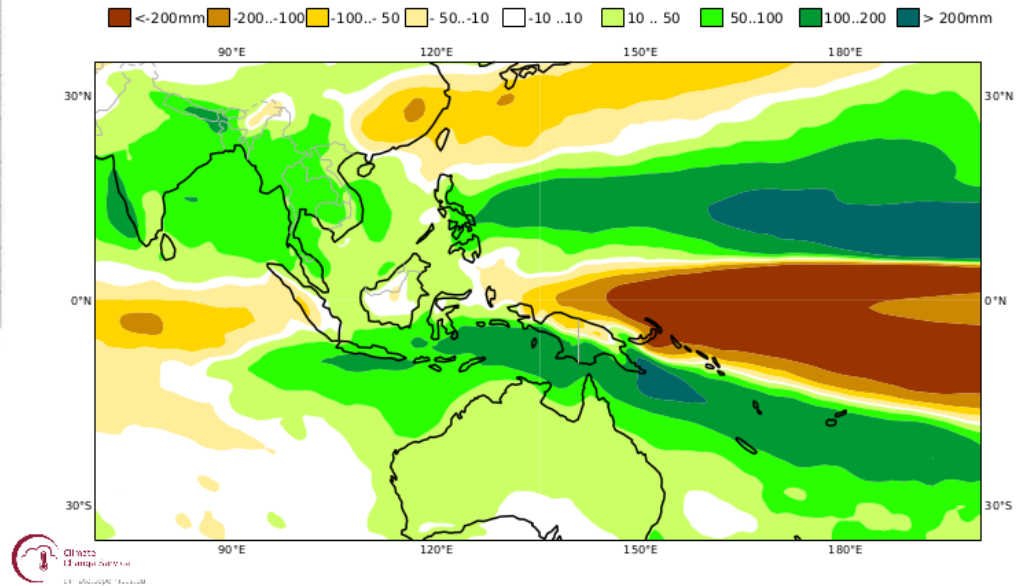


IRI Columbia University and ECMWF show a similar precipitation forecast for the period of Apr - Jun 2022.

Most areas in Jawa, Sumatera, and Kalimantan are expected to have normal to moderate rainfall. Part of Gorontalo, Sulawesi Utara, Jawa Barat, Jawa Tengah face a slight chance of increased precipitation. There is a moderate to high chance of increased rainfall in Jawa Timur, Nusa Tenggara and Papua, whereas some areas in Sumatera Barat, Kalimantan Barat and Papua Barat are predicted to have less precipitation during this three-month period.

These forecasts show the probability of accumulated rainfall over the next three months, either situated above or below normal conditions compared to the long-term average. It does not indicate chances of individual heavy rainfall events and should not be used to forecast local conditions or floods.

C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC  
 Mean precipitation anomaly AMJ 2022  
 Nominal forecast start: 01/03/22  
 Variance-standardized mean



Left: IRI Columbia University seasonal forecast for Apr - Jun 2022 indicates a probability of total precipitation within the next three months to be unusually high or low:

[http://iridl.ldeo.columbia.edu/maproom/IFRC/FIC/prcp\\_fcst.html?bbox=b%3A94.584%3A-11.255%3A141.811%3A6.308%3Abb](http://iridl.ldeo.columbia.edu/maproom/IFRC/FIC/prcp_fcst.html?bbox=b%3A94.584%3A-11.255%3A141.811%3A6.308%3Abb)

Right: ECMWF three-month seasonal forecast for Apr - Jun 2022 where green, white, and brown shades indicate wet, normal, and dry condition, respectively:

[https://climate.copernicus.eu/charts/c3s\\_seasonal/c3s\\_seasonal\\_spatial\\_cmf\\_rain\\_3m?facets=Parameters,precipitation&time=20220100,744,20220100&type=enism&area=area12](https://climate.copernicus.eu/charts/c3s_seasonal/c3s_seasonal_spatial_cmf_rain_3m?facets=Parameters,precipitation&time=20220100,744,20220100&type=enism&area=area12)



Center for Climate Change Information  
Meteorological, Climatological, and Geophysical Agency  
Jl. Angkasa I, No.2 Kemayoran | Jakarta 10720  
T. 62-21 4246321 | F. 62-21 4246703



Ministry of Agriculture  
Jl. RM Harsono No. 3 Ragunan | Jakarta 12550  
T. 62-21 7816652 | F. 62-21 7806938



Directorate of Early Warning  
National Disaster Management Authority (BNPB)  
Gedung GRAHA BNPB Jalan Pramuka Kav. 38, Jakarta Timur  
T. 62-21 21281200 | Fax. 62-21 21281200



Remote Sensing Application Centre  
Indonesia National Institute of Aeronautics and Space  
Jl. Kalisari No. 8, Pekayon, Pasar Rebo | Jakarta 13710  
T. 62-21 8710065 | F. 62-21 8722733



Directorate of Food Crops, Horticulture and Plantation Statistics  
Statistics Indonesia  
Jl. Dr. Sutomo No.6-8, Ps. Baru, Kecamatan Sawah Besar, Kota  
Jakarta Pusat | Jakarta 10710  
T. 62-21 3841195 | Fax. 62-21 3857046



World Food Programme  
Wisma Keiai 9th floor | Jl. Jend Sudirman Kav. 3 |  
Jakarta 10220  
T. 62-21 5709004 | F. 62-21 5709001 | E.  
wfp.indonesia@wfp.org



Directorate of Food and Agriculture  
Ministry of National Development Planning of the Republic of Indonesia  
Jalan Taman Suropati No.2 Jakarta 10310  
T. 62-21 31936207 | Fax 62-21 3145 374

### For more information, please contact:

#### WFP

- Saidamon Bodamaev | saidamon.bodamaev@wfp.org
- M. Warizmi Wafiq | warizmi.wafiq@wfp.org
- Gilang Aria Seta | gilang.aria@wfp.org
- Rahmitha | rahmitha.rahmitha@wfp.org

**BMKG:** Supari | supari@bmgk.go.id

**MoA:** Aris Pramudia | arispramudya@pertanian.go.id

**BNPB:** Afrial Rosya | afrial.rosya@bnpb.go.id

**LAPAN:** Dede Dirgahayu | dede.dirgahayu@lapan.go.id

**BPS:** Widyo Pura Buana | widyo.buana@bps.go.id