Food and Agriculture Organization of the United Nations
FOOD SECURITY AND EARLY WARNING INFORMATION SYSTEM

Yemen
AGROMETEOROLOGICAL UPDATE

June Issue (Ref: #23) | 01 - 30 June 2022

HIGHLIGHTS

- The drought that persisted since early in the year is coming to an end
- High likelihood of extreme rainfall events which will potentially trigger widespread floods from 19 – 31 July
- Dust clouds continued to blanket Yemen throughout June
- A spike in livestock diseases and mortality was observed through-

I. METEOROLOGICAL REVIEW

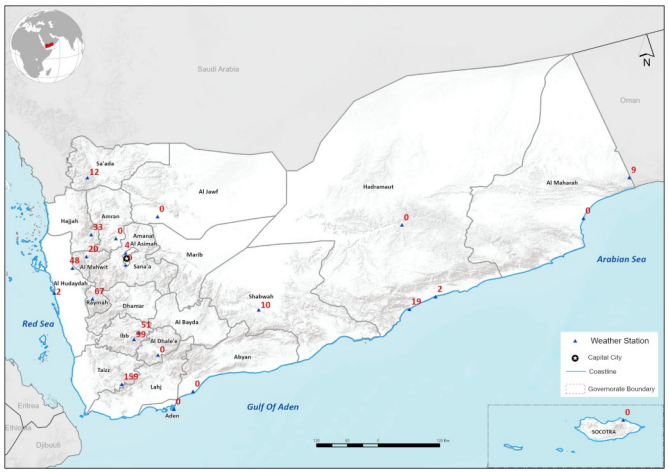
The drought that has persisted in Yemen for the last three months is ending with minimal showers experienced in the month of June except for Taizz and Ibb, where heavy rainfall was reported (Fig. 1A and B). Due to prolonged drought conditions over the past three months, the rainfall recorded in June was insufficient to improve vegetation conditions which remained generally stressed compared to the long-term average (Fig. 2B). The drought stress was also observed in the Agricultural Stress Index (ASI) which is used as an indicator of the likelihood of drought conditions across cropped areas (Fig. 6A – C). Dhamar and Ibb (north-eastern parts) governorates showed the highest stress level due to drought.

High temperatures were still dominant across most parts of the country (Fig. 5A and Table 1) in June, thus exacerbating the impact of drought on agriculture (See Section II). Field weather stations reported the highest temperature in Seiyoun with a high of 45.8°C which was 29 percent higher than the country-level average (35.5°C) and 6.3 percent than the temperature in May (42.0°C). High temperatures were also reported in Al Hudaydah (Al Kaden, 43.0°C), Al Jawf (Al Jouf, 41.7°C), Shabwah (Ataq, 41.4°C), and Aden (40.3°C). On the other hand, Dhamar reported the lowest temperatures with a minimum of 7°C, which is 152 percent lower than the average minimum temperatures in June (Fig. 5B and Table 1).

From 19 – 31 July 2022, enhanced atmospheric moisture from the Arabian Sea is expected to trigger extreme rainfall events, potentially leading to floods across much of the country. Based on the FAO threshold for floods (> 40 mm of rainfall in one instance), widespread flash floods are expected from mid-July to the month across most lowland areas, potentially affecting 42,000 people across the country. Southern parts of Aden are particularly at higher risk of flooding due to the 13 July 2022 4.6 magnitude earthquake near the Gulf of Aden[1]. The Meteorological Department, with the support of FAO, calls for mitigation measures and pre-position of flood assistance, especially in lowland areas.

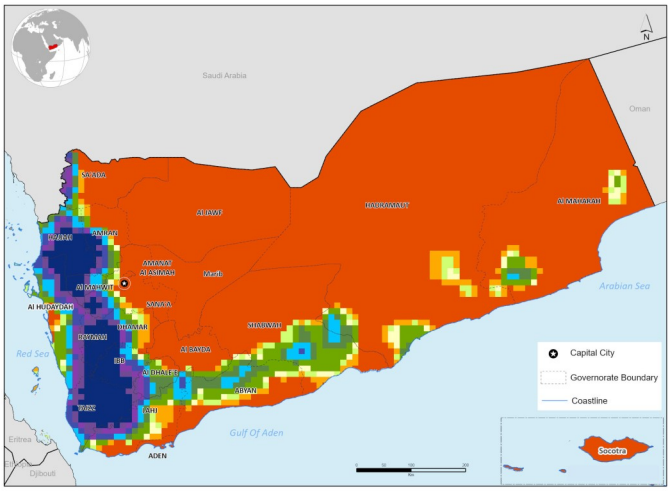
Fig. 1: Progress of monthly rainfall and vegetation conditions A) Observed rainfall (mm) B) Satellite-based rainfall estimates (mm) C) Vegetation Condition Index.

A

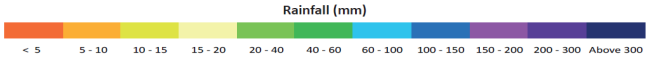


SOURCE : CAMA

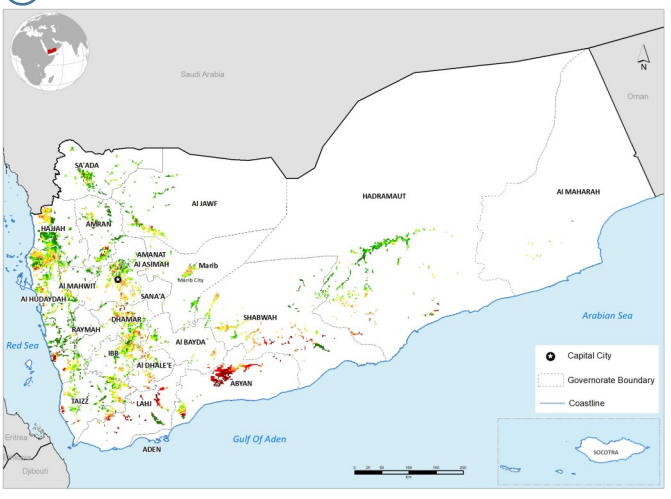
B



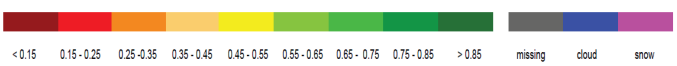
SOURCE : CPC



C



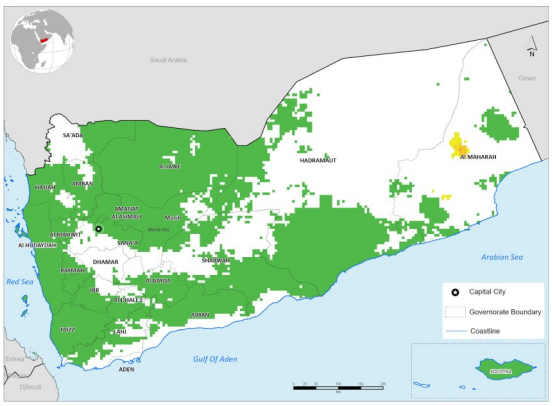
SOURCE : VCI – GIEWS, Crop mask – JRC



[1] https://earthquaketrack.com/r/gulf-of-aden/recent

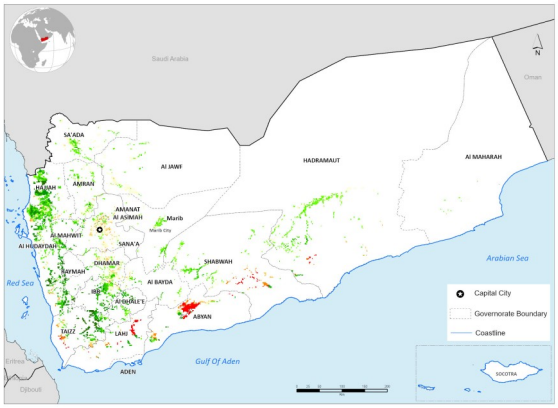
Fig. 2: Monthly anomalies (difference from long term average, LTA) for A) rainfall (LTA: 1983 – 2013) B) Normalized Difference Vegetation Index (LTA: 1984—2015)

A



SOURCE : CPC

B



SOURCE : NDVI anomalies – GIEWS, Crop

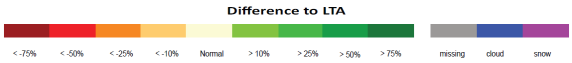
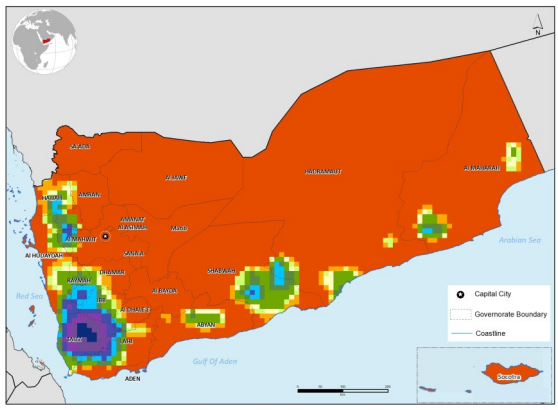


Fig. 3: Progress of rainfall estimates A) 1 to 10 June B) 11 to 20 June C) 21 to 30 June .

A



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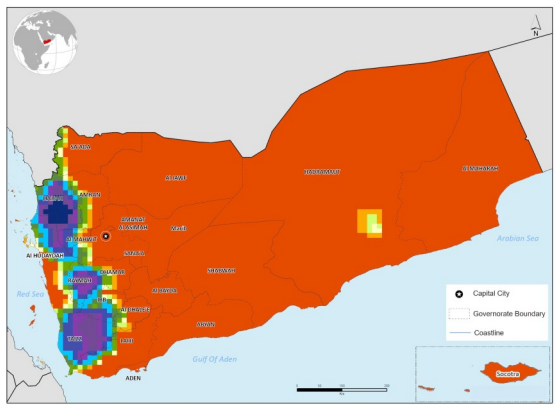

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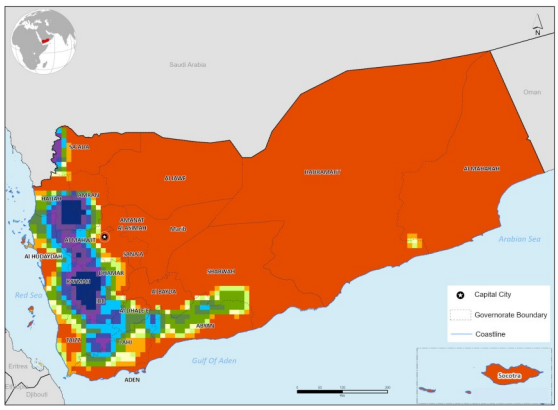


SOURCE : CPC

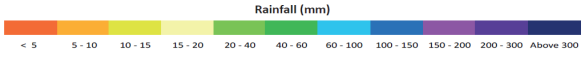
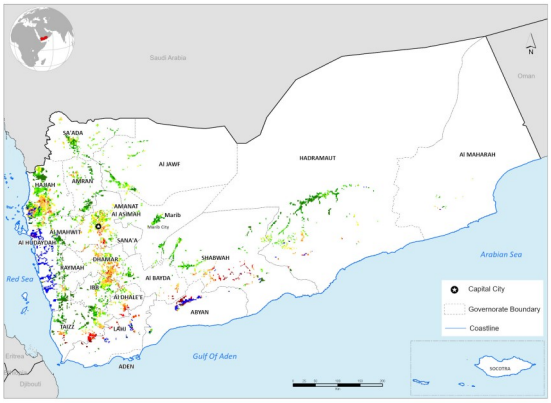
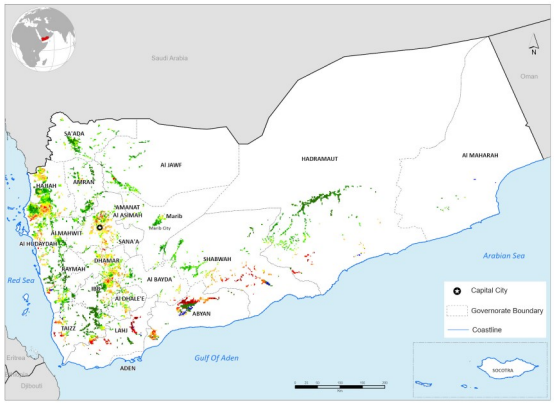


Fig. 4: Progress of vegetation conditions for A) 1 to 10 June B) 11 to 20 June C) 21 to 30 June .

A



B



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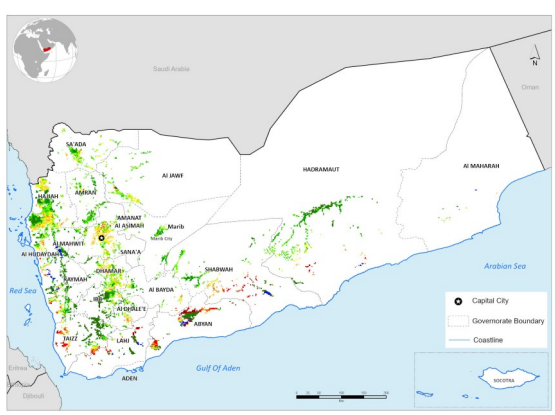


SOURCE : VCI – GIEWS, Crop mask – JRC

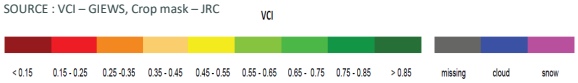


Fig. 5: Progress of monthly temperature conditions for A) Maximum B) Minimum

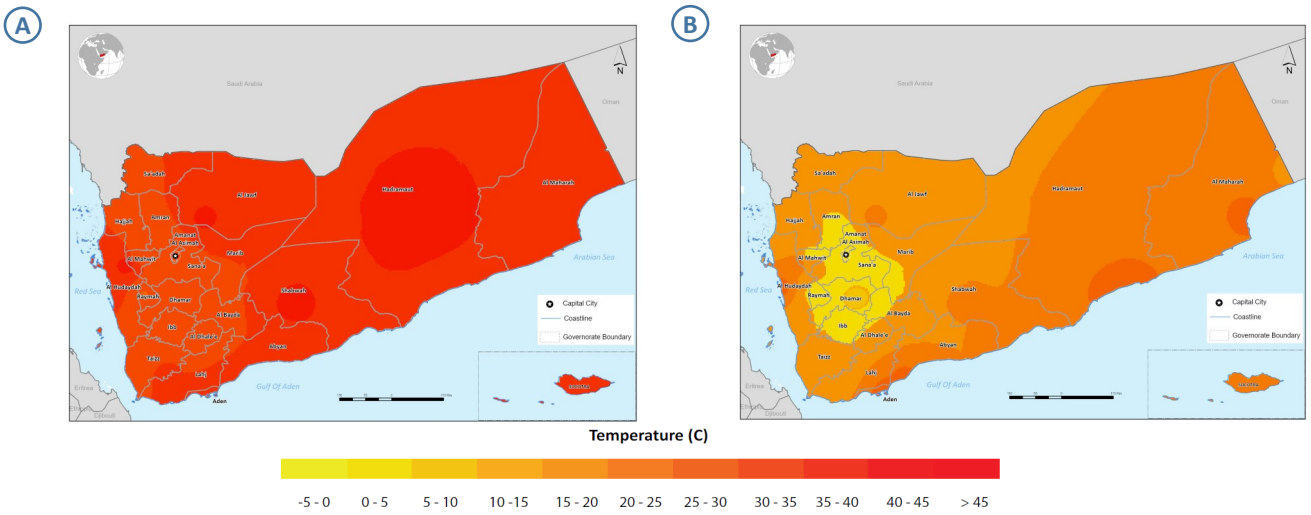
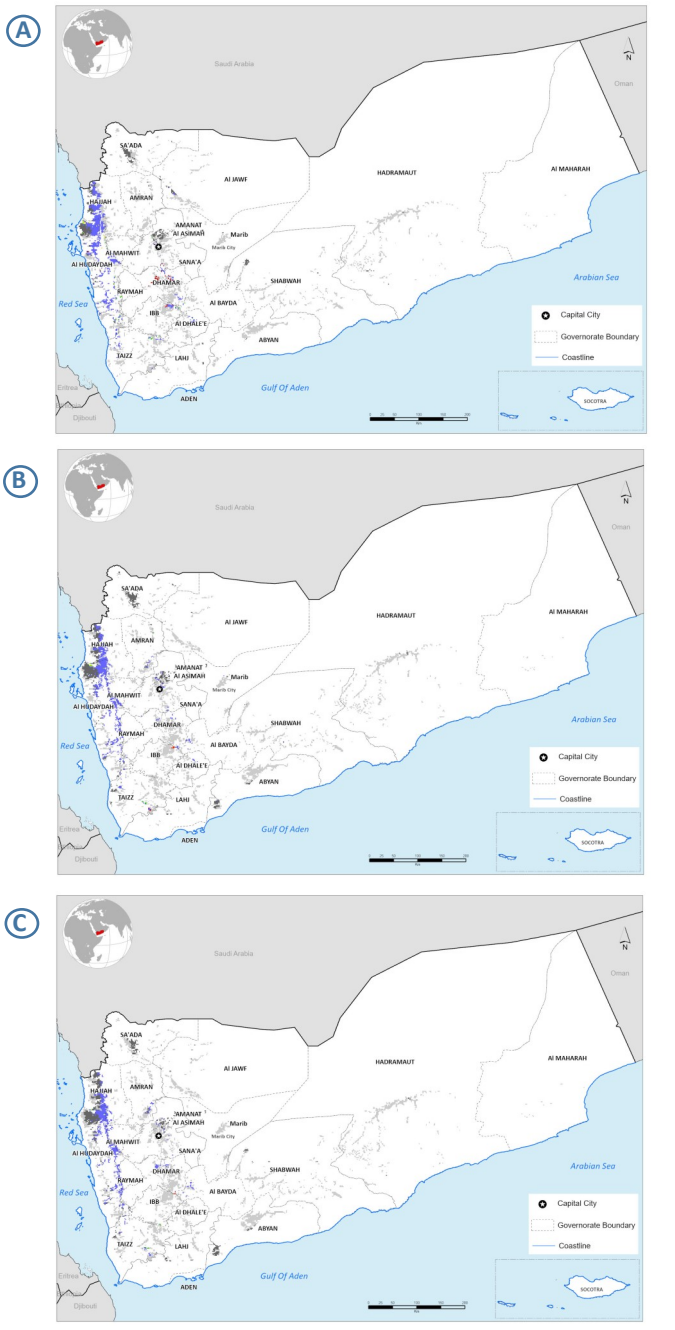


Fig. 6: Progress of Agricultural Stress Index (ASI) for A) 1 to 10 June B) 11 to 20 June C) 21 to 30 June



II. IMPACT ON AGRICULTURE

Although the drought that has persisted since the beginning of the year is coming to an end with the onset of rainfall, the effect of drought was still evident in June. The drought conditions, coupled with an unprecedented rise in temperature across the country, forced many farmers to temporally suspend most agricultural activities following the early warning advisory that FAO and the Meteorological Department issued. Farmers who continued with planting activities despite the forecasted abnormally dry conditions lost their seeds. Since drought stress increases the competition for nutrients, farmers are advised to resort to irrigation or delay planting whenever drought is forecasted. The planting of drought-resistant crops is another adaptive measure in such harsh conditions.

For the agropastoralists, the lack of fodder due to drought, high temperatures, limited water, and pasture has resulted in poor livestock body conditions susceptible to pests and diseases. A surge in livestock diseases was observed in the Eastern and Northern Highlands and large parts of the southern and central regions. These factors, coupled with increased demand for sheep, goats, and calves during Eid, resulted in most farmers selling their animals at giveaway prices. It is expected that the agropastoralists will have a difficult time in the coming months due to the high off-take caused by disease-induced deaths, low calving, and increased sales at low prices.

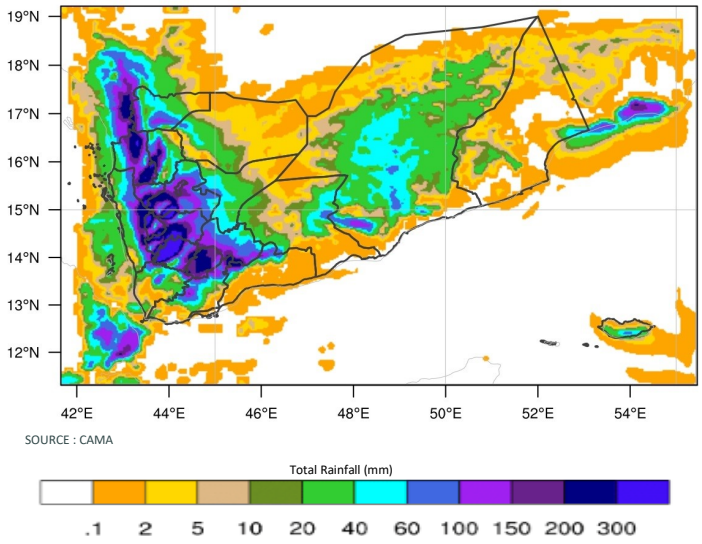
Given the generally dry conditions, dust clouds continued to blanket Yemen throughout June. Although the dust is usually heaviest in the uninhabited areas bordering Rub' al Khali, it gets transported by winds and spreads to the whole country. High levels of airborne dust can lead to increased airways-related diseases in poultry, leading to increased mortality. Poultry is an essential source of livelihood for many households as a source of income through the sale of meat and eggs, as well as a source of nutrients, mainly for children through the consumption of eggs. It was observed that during the Eid period, the chicken was in low supply leading to increased prices due to high demand. In Sana'a, the price of one chicken increased by 25 percent, while in Aden, it increased by 43 percent.

The observed drought conditions were also found to reduce water available for irrigation. Many farmers who use wells to irrigate their vegetables and fruit crops reported a noticeable reduction in groundwater levels resulting in loss of crops, vegetables, and fruits.

With the onset of rainfall, land preparation for the second season has begun for most agriculture livelihoods. It is expected that income from agriculture casual labour will be available, providing minimal reprieve to food access.

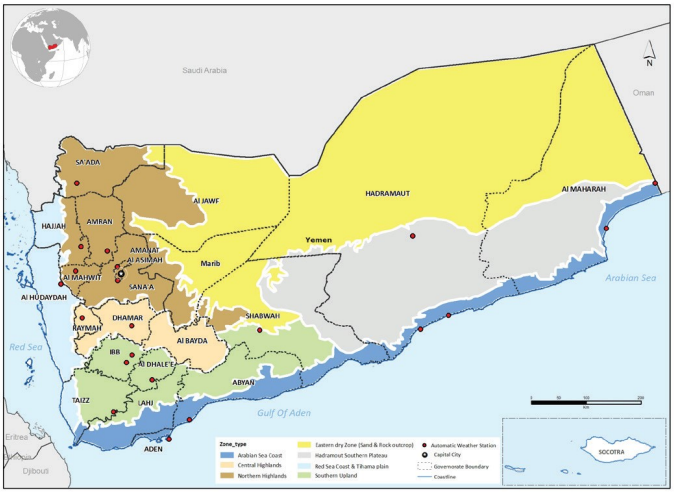
The outlook for 20 – 31 July indicates very heavy rainfall, which will potentially improve vegetation conditions and may encourage the movement of Desert Locusts from their summer breeding areas. However, the situation is unlikely to reach threatening levels until early October[2].

Fig. 7: Forecast for 20 – 31 July 2022



SOURCE : CAMA

Fig. 8: Agro-ecological zones and location of observatory stations



SOURCE : AREA

[2] https://www.fao.org/ag/locusts/en/info/info/index.html

Sources:

- Primary data are sourced from the Civil Aviation and Meteorology Authority (CAMA), Ministry of Agriculture and Irrigation (MAI) and FAO Global Information Early Warning System (GIEWS).
- Vegetation indicators are sourced from FAO GIEWS and are based on 10-day (dekadal) vegetation data from the METOP-AVHRR sensor at 1 km resolution (2007 and after). Data at 1 km resolution for the period 2006-1984are derived from the NOAA-AVHRR dataset at 16 km resolution. http://www.fao.org/giews/earthobservation/country/index.jsp?lang=en&code=YEM# and from the European Union's anomaly hotspots of agricultural production (ASAP).
- Rainfall estimates (RFE2) are sourced from the Climate Prediction Centre (CPC) of The National Oceanic and Atmospheric Administration (NOAA)

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III. VARIATIONS OF RAINFALL AND NDVI

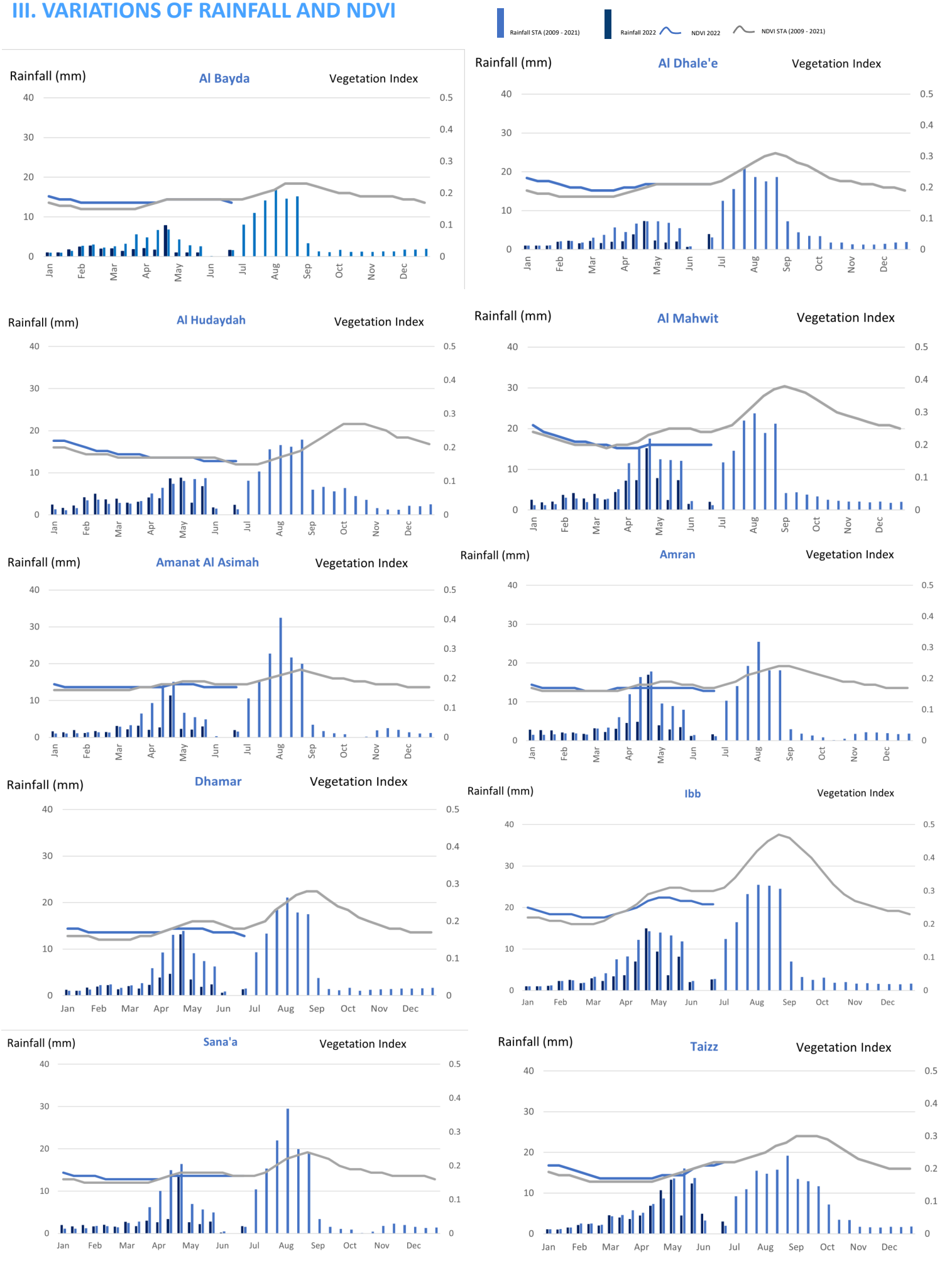

Table 1: Observed Station Data: Rainfall and Temperature

Governorate	Station	Rainfall (mm)	Temperature (°C)	
		Monthly	Max	Min
Abyan	Al Kood	0	37.1	26.5
Aden	Aden	0	40.3	28.4
Al Dhale'e	Al Dhala	0	-	-
Al Hudaydah	Al Kaden	49	43.0	23.1
Al Hudaydah	Al Hudaydah	2	38.5	27.8
Al Jawf	Al Jouf	0	41.7	21.7
Al Maharah	Algaidha	0	37.5	25.7
Al Maharah	Serfeet	9	36.0	19.4
Al Mahwit	Almahweet	20	31.8	14.0
Amanat Elasemah	CAMA/YMC Office	0	33.0	13.0
Amanat Elasemah	Al-Asbahi	4	-	-
Amanat Elasemah	Aljamaah	0	-	-
Amanat Elasemah	Alhasba	-	-	-
Amanat Elasemah	Baghdad	14	-	-
Amanat Elasemah	Shamlan	3	-	-
Amanat Elasemah	Sawan	5	-	-
Amanat Elasemah	Al Erah	-	-	-
Amran	Amran	0	33.6	11.0
Amran	Hamdah	-	-	-
Amran	Qa'a Alboon	-	-	-
Amran	Amran Gov.	-	33.0	12.0
Amran	Eial Sourih	0	33.0	12.0
Dhamar	Dhamar	5	31.0	7.0
Dhamar	AREA-HQ	5	33.0	12.0
Dhamar	Rosabh	39	-	-
Dhamar	Dhamar (MAI)		-	-
Dhamar	Maqar-Alhya'a	9	-	-
Dhamar	Qa'a Shrah		-	-
Hadramaut	Al Mukalla	20	-	-
Hadramaut	Al Shaher	2	36.9	26.9
Hadramaut	Seiyoun	0	44.8	21.4
Hadramaut	Assom	-	-	-
Hadramaut	Tarim	-	-	-
Hadramaut	Sah	-	-	-
Hadramaut	Aliotoof	-	-	-
Hadramaut	Seyun Pr	-	-	-
Hadramaut	Seyun Re	-	-	-
Hadramaut	Hawrah	-	-	-
Hadramaut	Doaan	-	-	-
Hadramaut	Shibam	-	-	-
Hadramaut	Ard Makharsh	-	-	-
Hadramaut	Brom	-	-	-
Hajjah	Hajjah	33	33.0	16.4
Ibb	Alsaddah	51	30.5	13.5
Ibb	Ibb	99	32.6	12.7
Ibb	Ibb (MAI)	23	30.0	13.0
Raymah	Al Jabeen-Rimah	67	29.7	13.1
Sa'ada	Sadah	13	34.7	15.7
Sana'a	Sana'a	4	33.0	12.6
Sana'a	Al Erah	-	-	-
Sana'a	Sanhan	0	-	-
Shabwah	Ataq	11	41.4	20.7
Socotra	Socatra	0	37.0	24.4
Taizz	Al Maafer	160	35.6	16.6
Taizz	Mashra and Hadnan	45	-	-
Taizz	Al Modafar	19	-	-
Taizz	Al Qahera	23	-	-
Taizz	Wadi Arafat	38	-	-
Taizz	Hawban Qadas	102	-	-
Taizz	Al Akahel	78	-	-
Taizz	Sabar almoadhm	19	-	-
Taizz	Airport	117	-	-