

Extending WFP's Emergency response through regional cooperation with Sentinel Asia - A critical partner for Humanitarian response

# ADAM Grand Vision

To be the first system to provide rapid disaster (and conflict) impact analysis for WFP and the wider humanitarian community and decision makers in the first critical 72-hours of an emergency using the best available geospatial dataset, methodologies and tools from WFP partners and collaborators

# ADAM by the numbers

- 2,300+ unique subscribers and users
- 200+ major & minor disasters analyzed since 2014
- 20+ humanitarian and aid organizations/partners

# ADAM's Family

## ADAM Earthquake

- Shake Intensity
- Epicenter Map
- Population Impact Table (by shake intensity)

## ADAM Tropical Storm

- Storm Trajectory Map
- Rainfall Forecast Map
- Population Impact Table (by windspeed)

## ADAM Floods

- Flood Map/Forecast
- Population and Cropland Impact Map
- Population and Cropland Impact Table



# ADAM Earthquake

**EARTHQUAKE**

**7.0** Magnitude

Automatically generated **SHAKE MAP** powered by: **ADAM** - Automated Disaster Analysis and Mapping

**27 July 2022** 02:48:26 GMT

**Place:** 46km E of Vigan  
**Time:** 27 Jul. 2022, 00:43 GMT  
**Depth:** 10.0 km  
**Coord.:** Lat: 17.56 Lon: 120.8  
**Populat.:** 780,585 within 50km

**USGS ShakeMap**

Instrumental Intensity	I	II-III	IV	V	VI	VII	VIII	IX	X
Potential Shaking	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
Potential Damage	None	None	None	Very Light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy

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**MODIFIED MERCALLI INTENSITY SCALE: 8.2/10**

**Intensity Class VIII:**  
 Drivers have trouble steering. Tall structures such as towers, monuments and chimneys may twist and fall. Wood frame houses that are not bolted to their foundations may shift and sustain serious damage. Damage is slight to moderate in well-constructed buildings, considerable in poorly constructed buildings. Branches are broken and fall from trees. Changes occur in flow or temperature of springs and wells. Cracks appear in wet ground and on steep slopes.

**Concepts and definitions**  
 Shake Map combines instrumental measurements of shaking with information about local geology and earthquake location and magnitude to estimate potential impacts throughout a geographic area. The estimated intensity map is derived from ground motions recorded by seismographs and represents Modified Mercalli Intensities (MMI's) that are likely to have been associated with the ground motions. Magnitude and Intensity measure different characteristics of earthquakes. Magnitude measures the energy released at the source of the earthquake. Magnitude is determined from measurements on seismographs. Intensity measures the strength of shaking produced by the earthquake at a certain location. Intensity is determined from effects on people, human structures, and the natural environment. (Source: USGS)

Please report errors to [hq.gis@wfp.org](mailto:hq.gis@wfp.org). Event ID: us600005vt. Map projection: WGS 84 / UTM Zone 51N (EPSG: 32651). Sources: USGS (ShakeMap layer, earthquake info), GAUL, WFP/VAM, NASA, ESRI. The designations employed and the presentation of material in this map 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.

**EARTHQUAKE**

**6.8** Magnitude

**Place:** 7km W of Nueva Era  
**Time:** 25 Oct. 2022, 14:59 GMT  
**Depth:** 10.0 km  
**Coord.:** Lat: 17.9 Lon: 120.6

**PEOPLE LIVING IN THE AREA**

- Within 15 km from epicenter: 92,339
- Within 30 km from epicenter: 458,281
- Within 50 km from epicenter: 1,087,720

**FOOD SECURITY**

**15.6 M** People with insufficient food consumption IN THE COUNTRY

**WEATHER FORECAST**

Current Conditions: 28°C, Humidity: 70%, Wind: 4.73 m/s

**WFP WORLD FOOD PROGRAMME PRESENCE**

**OFFICES IN THE AFFECTED COUNTRY**  
 Sub Offices: 2  
 Country Offices: 1  
 Reference Regional Bureau for Philippines: RBB - Bangkok

**CLOSEST FACILITY**  
 Manila, Country Office, PHL (374km from epicenter)

Automatically generated alert powered by: **ADAM** - Automated Disaster Analysis and Mapping

**25 October 2022** | 15:18:19 GMT

Follow alerts via Twitter: [@wfp\\_adam](https://twitter.com/wfp_adam)

**Earthquake in Philippines - Preliminary Population Exposure Estimation.**

The population exposure, summarized by Admin 0, 1 and 2, has been calculated using a 1km resolution WorldPop raster (WorldPop Database 2020). Admin boundaries are defined by Gaul 2015 dataset. Impact intensity levels are derived from the ShakeMap, a product of the USGS Earthquake Hazards Program. This is a preliminary analysis and has not yet been validated in the field.

Analysis performed by ADAM (Automated Disaster Analysis and Mapping) on 25-10-2022 at 17:09 UTC.  
 Contact: [hq.gis@wfp.org](mailto:hq.gis@wfp.org)

**Intensity classes for this earthquake:**  
 III: Felt by people indoors. Hanging objects swing back and forth. Vibration from the earthquake may seem like the passing of light trucks. May not be recognized as an earthquake.  
 IV: Hanging objects swing. Vibration may seem like the passing of heavy trucks or a jolt, like a heavy ball striking the walls. Parked vehicles may rock noticeably. Windows, dishes, doors may rattle and glasses clink.  
 V: Almost everyone feels movement whether inside or outdoors. Sleeping people are awakened. Liquids in containers are disturbed; some are spilled. Small unstable objects are displaced or overturned. Doors swing. Felt by all; some are frightened and take cover. People have difficulty walking due to motion. Objects fall from shelves and dishes, glassware and ceramics may be broken. Pictures fall off walls. Furniture may rattle.  
 VI: Felt by all; some are frightened and take cover. People have difficulty walking due to motion. Objects fall from shelves and dishes, glassware and ceramics may be broken. Pictures fall off walls. Furniture may rattle.  
 VII: People have difficulty standing. Drivers on the road feel their cars shaking. Furniture may be overturned and broken. Loose bricks fall from buildings and masonry walls and cracks in plaster and masonry may appear.

ADM0_NAME	ADM1_NAME	ADM2_NAME	POPULATION					TOTAL
			3	4	5	6	7	
Philippines	Cordillera Administrative region (CAR)	Abra		2.026	59.501	169.125	25.134	255.786
		Apayao	728.388	106.105	37.276			143.381
		Benguet		169.484				897.872
		Ifugao	31.739	47.986				79.725
		Kalinga		282.739	22.218			304.957
		Mountain Province		192.737	155			192.892
		Ibera Administrative region (CAR) - TOT	760.127	801.077	119.150	169.125	25.134	1,874.613
		Region I (Ilocos region)	430	154.692	474.109	21		629.252
		Ilocos Norte	1.058	221.161	121.557			343.776
		La Union	319.855	462.755				782.606
Pangasinan	102.211					102.211		





# ADAM Tropical Storm

**TROPICAL STORM**

**EVENT INFO**

**i** **Current windspeed:** 92.6 km/h

**Max. Storm Surge:** 0.69 m.

**Current Coordinates:** Lat: 16.4 Lon: -63.3

**Warning ref.:** NOAA - Bulletin #12

**PEOPLE LIVING IN AREAS AT RISK**

(All Countries Considered)

**120 km/h windspeed** ● 1,063,619

**90 km/h windspeed** ● 2,418,099

**60 km/h windspeed** ● 15,163,653



**Tropical Cyclone FIONA**

**WFP WORLD FOOD PROGRAMME PRESENCE**

**CLOSEST FACILITIES**

Roseau Country Office (DMA): 238 km on 17/09 at 09:00

Bridgetown Country Office (BRB): 684 km on 17/09 at 18:00

Caracas Country Office (VEN): 736 km on 18/09 at 06:00

**CLOSEST HUMANITARIAN RESPONSE DEPOT**


Panama City (PAN): 1943 km on 17/09 at 09:00

Automatically generated alert powered by:  
**ADAM** - Automated Disaster Analysis and Mapping

17 September 2022 | 09:28:40 GMT

A collaboration with JRC

Follow alerts via Twitter: @wfp\_adam



**WFP**

**WIND BUFFERS**

**WIND SPEED**

**WIND SPEED (FORECAST)**

**NATIONAL CAPITAL**

**MAJOR TOWN**

**INTERMEDIATE TOWN**

**DENSELY POPULATED AREA**

**INTERNATIONAL BOUNDARY**

**REGION BOUNDARY (ADM1 LEVEL)**

**UNDETERMINED BOUNDARY AND OTHER BOUNDARY**

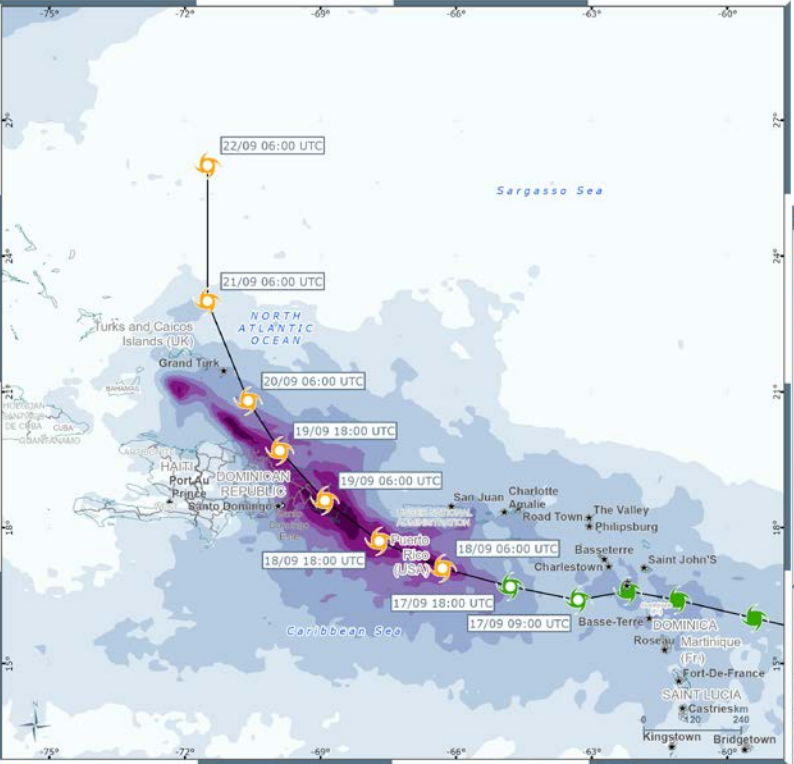
**COASTLINE**

Please report errors to [hq.gis@wfp.org](mailto:hq.gis@wfp.org). Event ID: 1000916\_12. Coordinate system: GCS WGS 1984. Sources: GDACS, LandScan 2018, GAUL, WFP, ESRI. The designations employed and the presentation of material in this map 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.

**TROPICAL STORM**

**Tropical Cyclone FIONA**

**5 Days Precipitation Forecast - 16 Sep to 21 Sep**



**PRECIPITATION BY CITY**

**Accumulated Precipitation Forecast**

City	5 Days Rainfall
La Romana (DOM)	419 mm.
San Pedro de Macoris (DOM)	357 mm.
Salvaleón de Higüey (DOM)	281 mm.
Ponce (PRI)	235 mm.
San Francisco de Macoris (DOM)	166 mm.
Puerto Plata (DOM)	151 mm.
Santo Domingo (DOM)	147 mm.
Los Alcarrizos (DOM)	147 mm.
Concepción de La Vega (DOM)	124 mm.
Caguas (PRI)	120 mm.
Lamentin (GLP)	114 mm.
Baie-Mahault (GLP)	114 mm.
Saint-François (GLP)	114 mm.

Automatically generated alert powered by:  
**ADAM** - Automated Disaster Analysis and Mapping

17 September 2022 09:30:27 GMT

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Please report errors to [hq.gis@wfp.org](mailto:hq.gis@wfp.org). Event ID: 1000916\_12. Coordinate system: GCS WGS 1984. Sources: GDACS, LandScan 2018, GAUL, WFP, ESRI. The designations employed and the presentation of material in this map 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.

**FIONA-22 - Population Exposure Estimation based on bulletin n. 12**

The population exposure, summarized by Admin 0, 1 and 2, has been calculated using a 1 km resolution LandScan raster (LandScan Database 2018). Admin boundaries are defined by GaUL 2015 dataset. Windspeed buffers are produced by GDACS (JRC). This is a preliminary analysis and has not yet been validated in the field.

Analysis performed by ADAM (Automated Disaster Analysis and Mapping) on 17-09-2022 at 09:28 UTC.  
Contact: [hq.gis@wfp.org](mailto:hq.gis@wfp.org)

ADM0_NAME	ADM1_NAME	ADM2_NAME	POPULATION			TOTAL
			60 km/h	90 km/h	120 km/h	
Anguilla	Blowing Point	--	786			786
	Dog Island	--				
	George Hill	--	1.650			1.650
	Island Harbour	--	3.003			3.003
	Long Bay Village	--	1.207			1.207
	Scrub Island	--				
	South Hill	--	1.686			1.686
	Stoney Ground	--	4.700			4.700
	The Valley	--	2.418			2.418
	<b>Anguilla - TOT</b>			<b>15.450</b>		
Antigua and Barbuda	Barbuda	--	1.885			1.885
	Redonda	--				
	Saint George	--	10.713	10.713		21.426
	Saint John	--	51.244	51.244		102.488
	Saint Mary	--	8.067	8.067		16.134
	Saint Paul	--	10.031	10.031		20.062
	Saint Peter	--	8.526	8.526		17.052
Saint Phillip	--	3.531	3.531		7.062	
<b>Antigua and Barbuda - TOT</b>			<b>93.997</b>	<b>92.112</b>		<b>186.109</b>

**ADAM Flood  
Forecast**

**ADAM Flood  
Impact Analysis**

**ADAM Flood  
Monitoring**



Day 0 – next 14 days

First 72 hours

Long Floods  
1-3 months or more

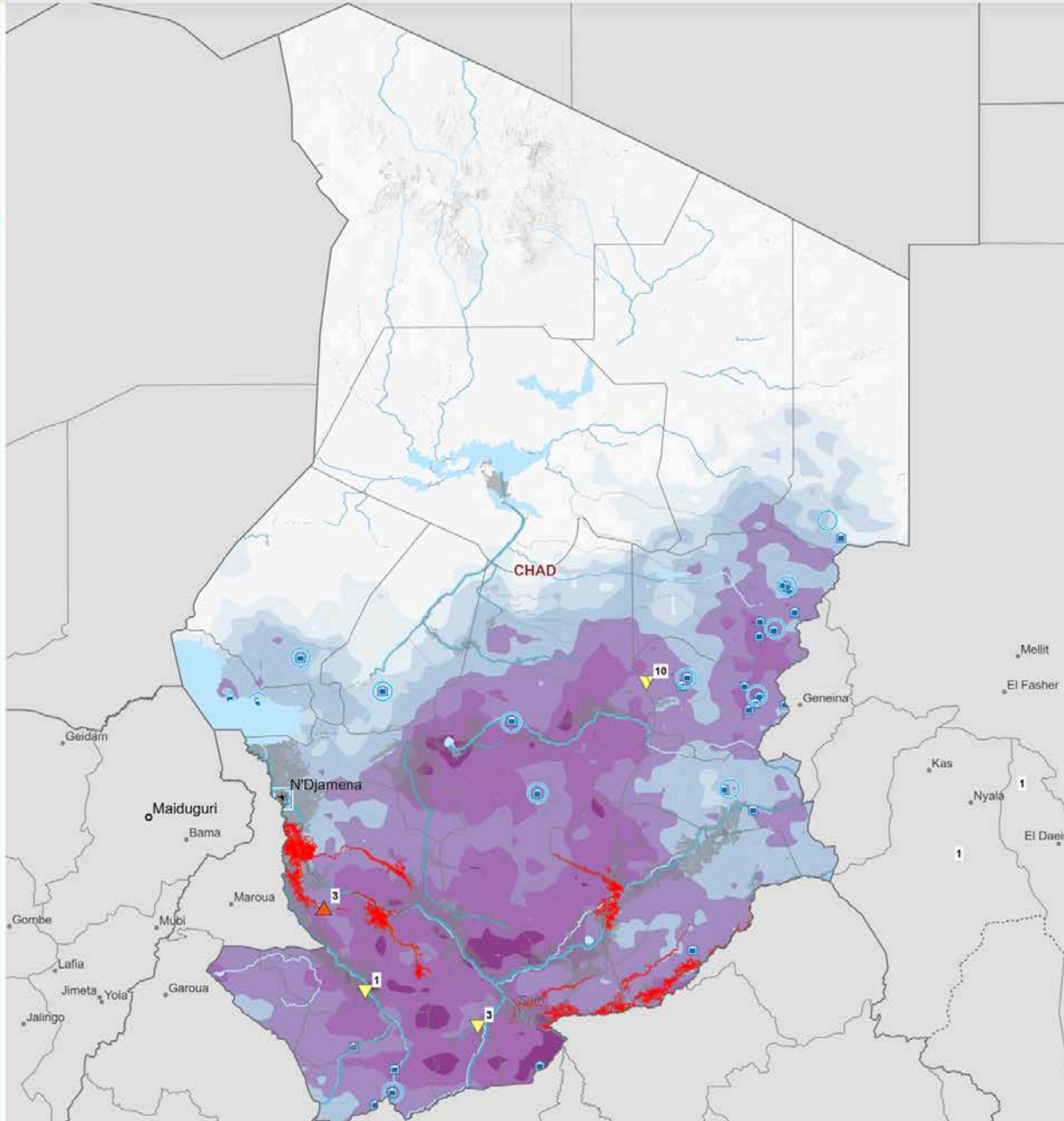
# ADAM Floods - Forecast



**FLOOD Alert**

**Chad**

Rainfall & river flood forecast from 18 Aug - 25 Aug



## Potential populated places of concern

locality	Alert	Peak flow	River
Benoy	1	19	Aug Logone
Koulaka	1	19	Aug Logone
Sarh	1	21	Aug Unnamed River
Gayam	1	21	Aug Unnamed River
Goundi	1	21	Aug Unnamed River
Malta	1	21	Aug Unnamed River
Hellibongo	1	21	Aug Unnamed River
Kim	2	21	Aug Unnamed River
Umm Hajar	1	28	Aug Unnamed River

**Legend**

- Country Office (Square)
- Field Office (Triangle)
- Sub Office (Circle)
- First-level administrative boundaries (Solid line)
- Special boundary line: Amistation, undetermined or administrative line; Autonomous region boundary; Other; Sovereign base limit (Dashed line)
- Surface waterbodies (Blue area)
- Global flood hazard - 0.05% chance in 1 year (JRC) (Grey area)
- 5 days precipitation forecast (ECMWF)
  - < 20 mm (Lightest blue)
  - 20 - 30 mm (Light blue)
  - 30 - 60 mm (Medium blue)
  - 60 - 75 mm (Dark blue)
  - 75 - 100 mm (Purple)
  - > 100 mm (Darkest purple)

**River Forecast Information (Source: JRC-GLOFAS | GeoGLOS)**

**Trend Forecast (next 6 days)**

- Normal Flow (Square)
- Decrease River Flow (Downward Triangle)
- Increase River Flow (Upward Triangle)
- Large Increase River Flow (Large Upward Triangle)

**Peak Flow Probability Forecast (next 6 days)**

- 50% chance of flooding every 2 years (high chance) (Yellow)
- 20% chance of flooding every 5 years (low chance) (Orange)
- 5% chance of flooding every 20 years (very low chance) (Red)

**7** The number in the shape indicates the forecasted peak river discharge date.  
 Example: If the forecast is for 01 Jan 2020, the forecasted peak discharge for this point of the river is on 08 Jan 2020

**River Flow Forecast (next 6 days)**

- Normal (Blue line)
- Exceeds 2yr Return (Orange line)
- Exceeds 10yr Return (Red line)
- Exceeds 50yr Return (Purple line)

**Flood Inundation forecast (GLOFAS)**  
 This layer is only available for only for large river basin (>10,000 sqkm)

**ADAM**  
 Automated Disaster Analysis and Mapping  
 ADAM Floods - Alert

In partnership with  
 Joint Research Centre

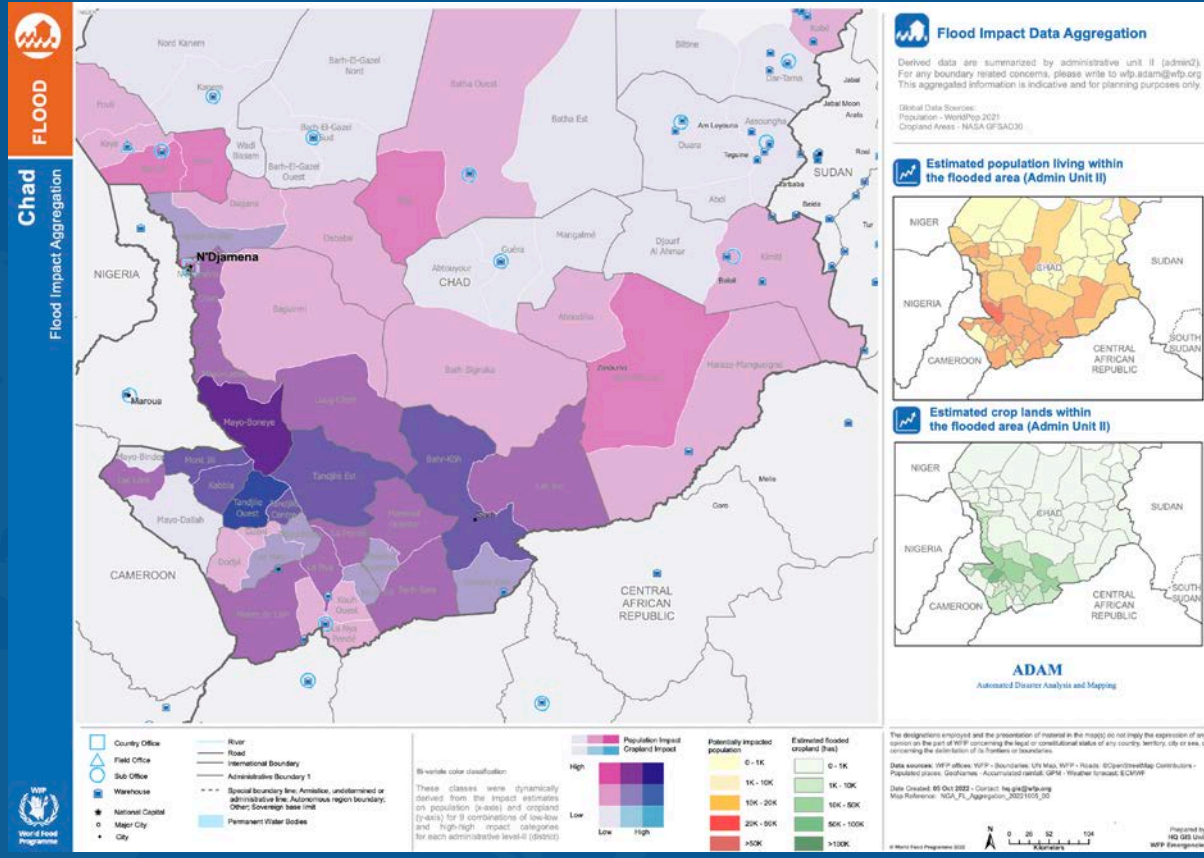
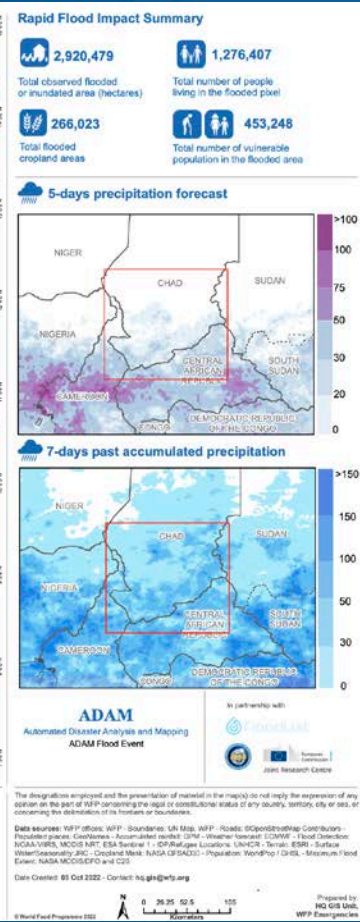
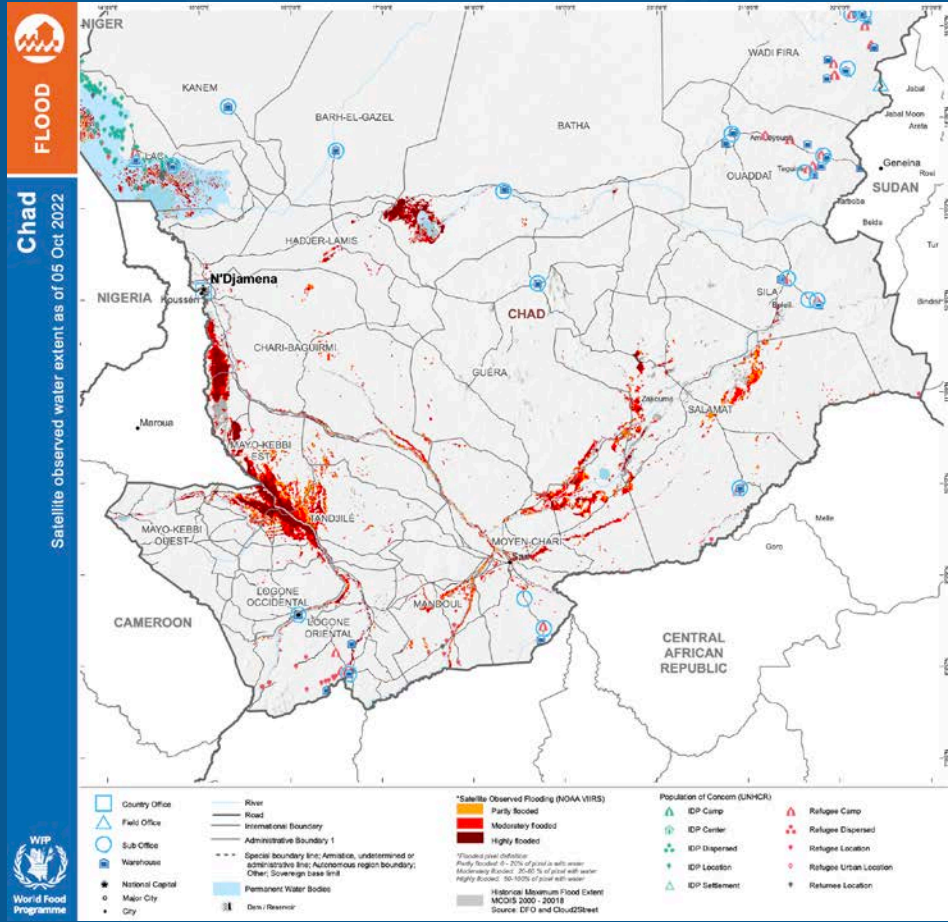
The designations employed and the presentation of material in the map(s) do not imply the expression of any opinion on the part of WFP concerning the legal or constitutional status of any country, territory, city or sea, or concerning the delimitation of its frontiers or boundaries.

**Data sources:** WFP offices; WFP - Boundaries: UN Map; WFP - Roads: ©OpenStreetMap Contributors - Populated places: GeoNames - Accumulated rainfall: GPM - Weather forecast: ECMWF

Date Created: 18 Aug 2022 - Contact: [hq.gis@wfp.org](mailto:hq.gis@wfp.org)  
 Map Reference: Alert\_dashboard\_beta



# ADAM Floods - Event

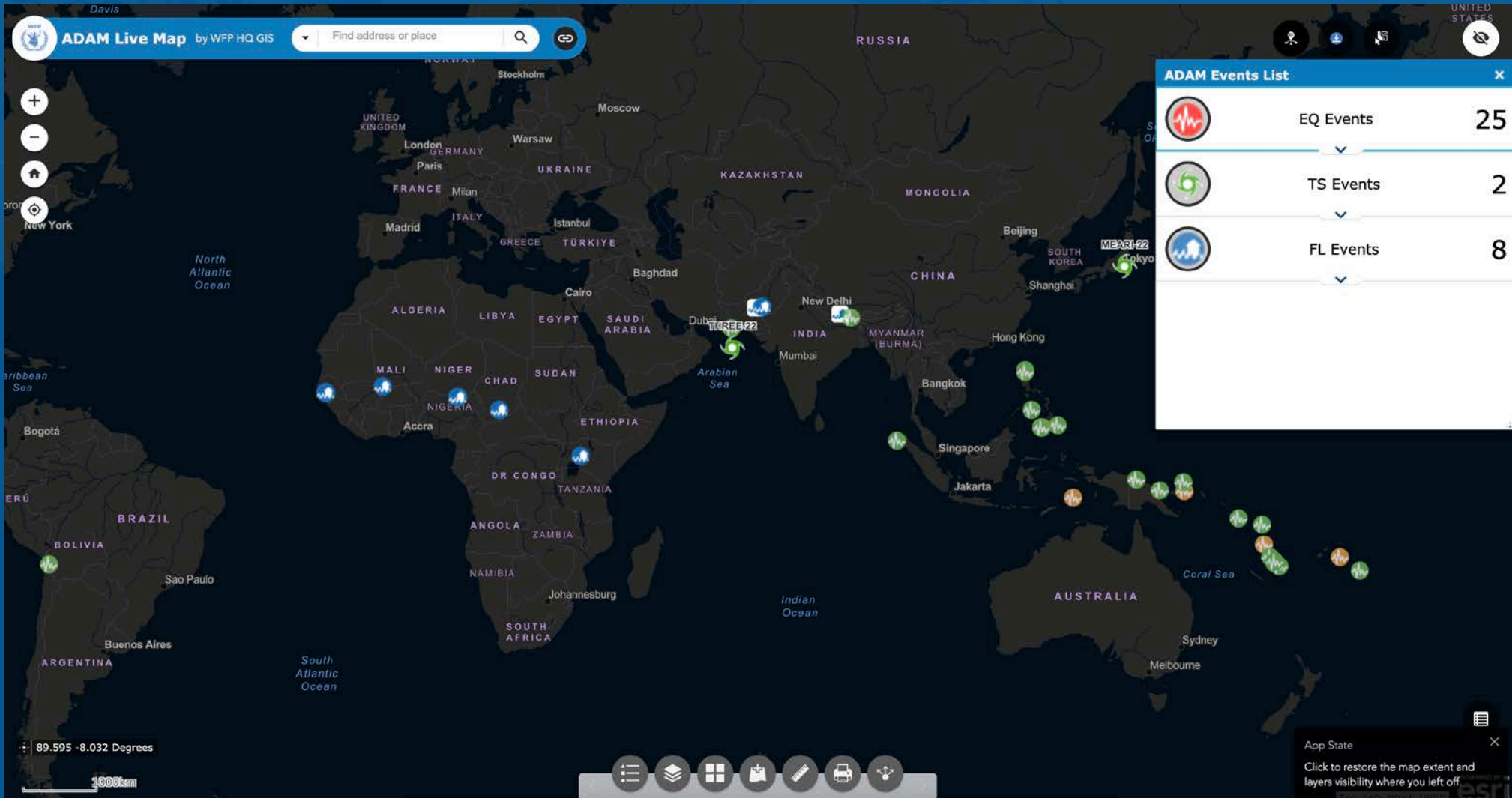


### A.D.A.M Floods - Rapid Impact Analysis

\*estimated number of people living in the flooded areas with at least 100 people potentially affected per district. Vulnerable population within flooded area are estimates from WorldPop data.


Country Code	Region (Admin level 1)	District (Admin level 2)	Flooded Area (hectares)	Flooded Cropland (hectares)	Potentially Impacted Population*		
					Total in District	Children (0-9 y.o.)	Elderly (>60 y.o.)
TCD	Barh-El-Gazel	Barh-El-Gazel Nord	6,323	0	140	6	46
		Barh-El-Gazel Sud	2,767	0	380	15	124
	Batha	Batha Est	6,235	39	896	44	320
		Batha Ouest	12,941	35	1,040	51	371
		Fitri	177,739	46	29,357	1,452	10,472
	Chari-Baguirmi	Baguirmi	57,105	155	10,155	419	3,515
		Chari	130,438	3,019	53,112	1,686	12,953
		Loug-Chari	114,666	4,041	24,457	998	8,475
	Guéra	Barh-Signaka	91,163	186	6,351	314	2,265
		Dababa	37,479	202	7,295	302	2,534
		Dagana	7,193	370	3,193	132	1,109
	Kanem	Haraze-Al-Biar	27,583	1,477	19,099	784	6,647
		Nord Kanem	9,912	0	205	8	67
		Fouli	71,211	4	4,524	183	1,478
	Lac	Kaya	23,530	3	4,432	180	1,448
		Mamdi	153,021	182	37,920	1,538	12,391
		Wayi	30,792	105	21,415	870	7,050

# ADAM LIVE MAP | [gis.wfp.org/adamlive](https://gis.wfp.org/adamlive)





# ADAM dashboard



Home

Earthquakes

**Floods**

Tropical Storms

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**App Settings**

Filter displayed records.

Start Date

2016/01/01

End Date

2023/07/14

Aggregate Events By

Event Date

---

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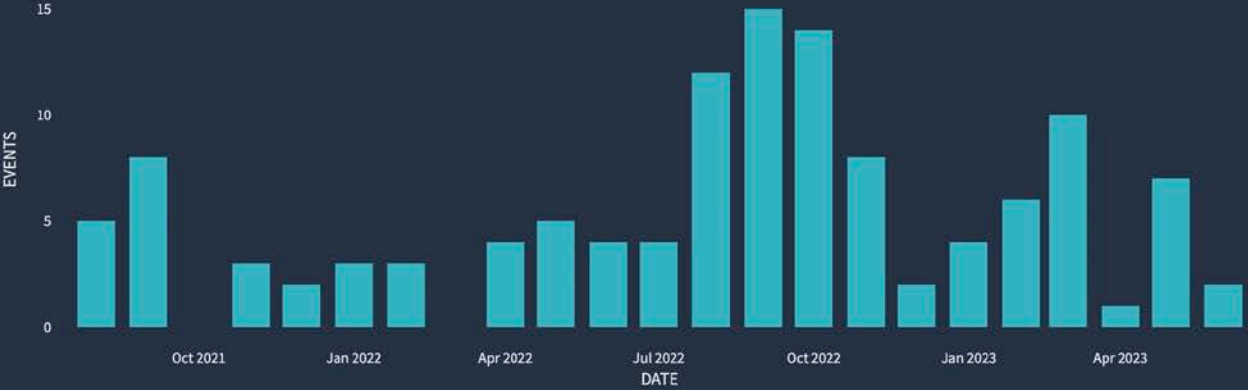
Contact: [wfp\\_adam@wfp.org](mailto:wfp_adam@wfp.org); Live Map: [ADAM Live Map](#); Data API: [WFP ADAM API](#).

## ADAM Floods.

This page shows ADAM Floods records from 2016-01-01 to 2023-07-14.

Flood Events | Flood Subscribers

**Floods Events grouped by Date**



DATE	EVENTS
Oct 2021	5
Nov 2021	8
Dec 2021	3
Jan 2022	2
Feb 2022	3
Mar 2022	3
Apr 2022	4
May 2022	5
Jun 2022	4
Jul 2022	4
Aug 2022	12
Sep 2022	15
Oct 2022	14
Nov 2022	8
Dec 2022	2
Jan 2023	4
Feb 2023	6
Mar 2023	10
Apr 2023	1
May 2023	7
Jun 2023	2

**Flood Events Table**

id	iso3	country	rb	flood_area	fl_croplnd	population	date	download
<input type="checkbox"/> FL-2023...	CUB	Cuba	RBP	75959	45981	56198	2023-06-12	<a href="#">Click to dow...</a>
<input type="checkbox"/> FL-2023...	HTI	Haiti	RBP	51845	42118	434174	2023-06-08	<a href="#">Click to dow...</a>
<input type="checkbox"/> FL-2023...	SOM	Somalia	RBN	246525	47441	333905	2023-05-18	<a href="#">Click to dow...</a>
<input type="checkbox"/> FL-2023...	MMR	Myanmar	RBB	402004	297436	615368	2023-05-18	<a href="#">Click to dow...</a>
<input type="checkbox"/> FL-2023...	MMR	Myanmar	RBB	276486	368701	479895	2023-05-16	<a href="#">Click to dow...</a>
<input type="checkbox"/> FL-2023...	COD	Congo, The ...	RBJ	174001	36173	344012	2023-05-08	<a href="#">Click to dow...</a>
<input type="checkbox"/> FL-2023...	UGA	Uganda	RBN	278647	61395	672793	2023-05-08	<a href="#">Click to dow...</a>





**Disaster Events where Sentinel-Asia data  
have been very vital for WFP Operations**



Satellite observed surface water

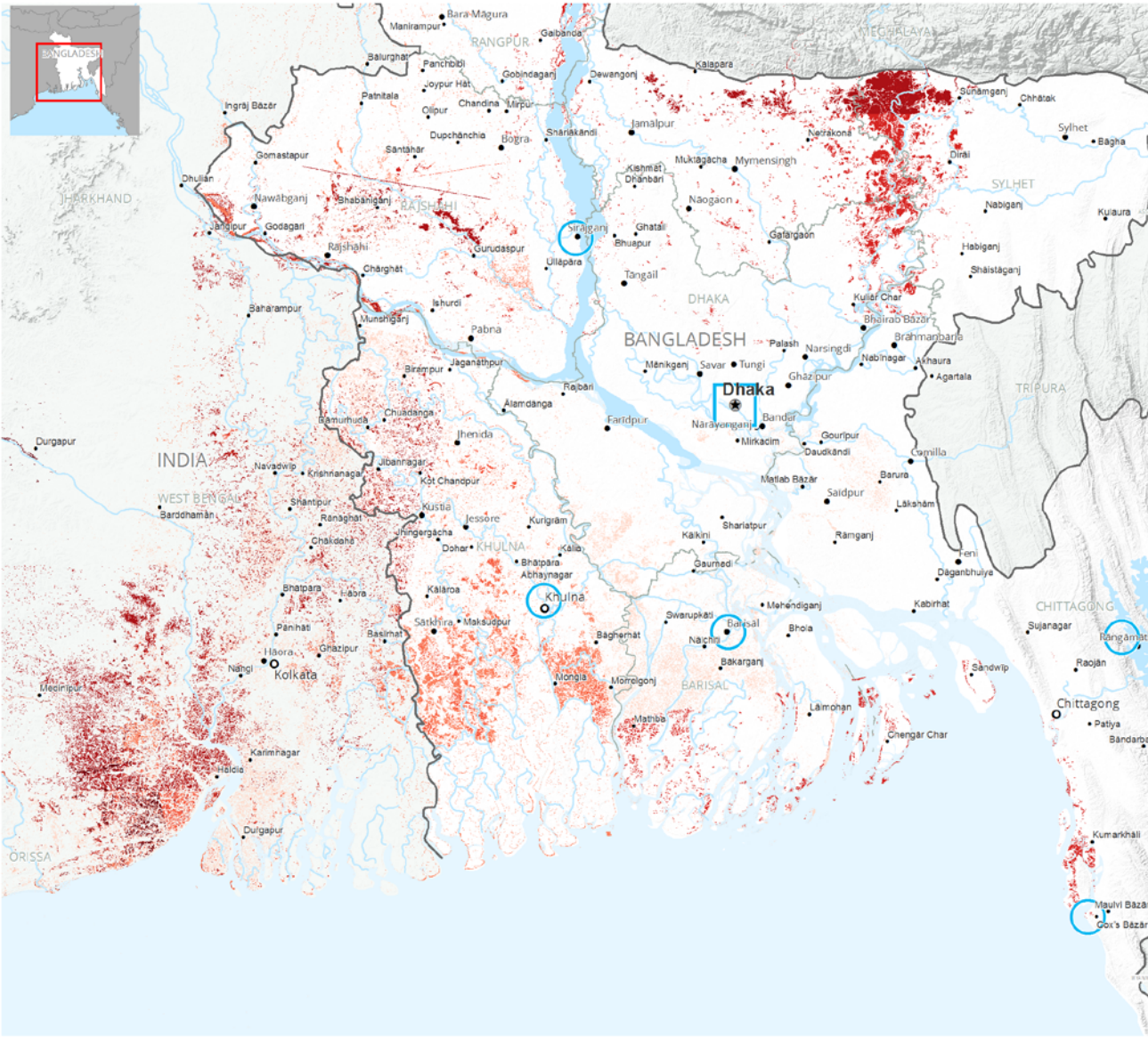
Bangladesh - TC Amphan  
01 June 2020



SAVING LIVES  
CHANGING LIVES



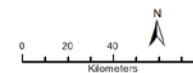
World Food Programme



- Country Office
- Field Office
- Sub Office
- National Capital
- Major Town
- Intermediate Town
- Small Town
- International boundaries
- Division boundaries
- River
- Surface waterbodies

Satellite-detected waters (Sentinel 1-A and ALOS PALSAR-2)

- No floods detected
- 22 May 2020
- 23 May 2020
- 24 May 2020
- 25 May 2020
- 26 May 2020
- 28 May 2020
- 30 May 2020

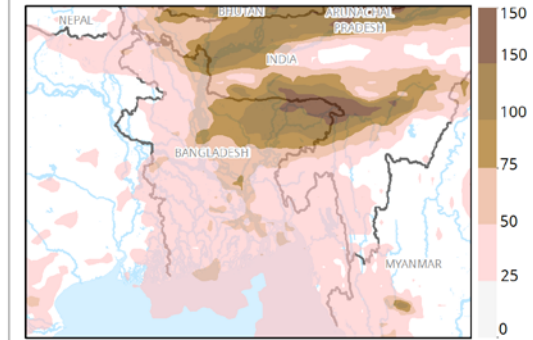


Situation Overview  
Satellite observed surface water

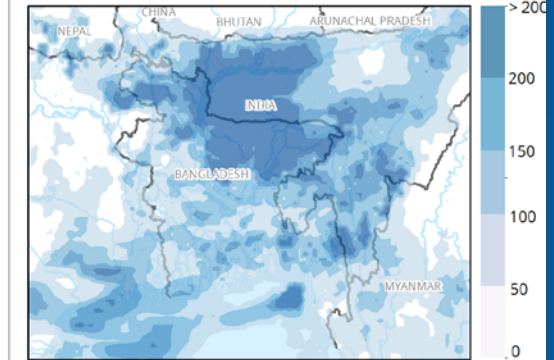
The dashboard shows the overall flood detection observed in eastern India and north western Bangladesh between 22-30 May 2020 as the result of the processing of Sentinel 1-A and PALSAR-2 radar imagery. It should be noted that water in cultivated areas may be included in the analysis and that flood extents may be underestimated for urban areas or be subject to recession, since the beginning of the storm.

Elaboration done with HASARD processor on WASDI Platform, by the ARIA-SG team at the Earth Observatory of Singapore (EOS), in collaboration with NASA-JPL and Caltech, and by AIT-GIC (v1.0). The dashboard also shows the 5-days weather forecast (01-05 June) and the past accumulated rainfall in the last 7 days (25-31 May).

Weather forecast (ECMWF, 01-05 June, mm)



Past acc. rainfall (GPM, 25-31 May, mm)



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Data sources: WFP offices; WFP - Boundaries; UN Map; WFP - Roads; ©OpenStreetMap Contributors - Populated places; GeoNames - Flood; JAXA, EOS, Sentinel 1-A - Accumulated rainfall; GPM  
Weather forecast: ECMWF

Date Created: 01 Jun 2020 - Contact: [hq.gis@wfp.org](mailto:hq.gis@wfp.org)  
Map Reference: BGD\_FL\_AffectedArea\_A3L\_20200501

Prepared by:  
HQ GIS Unit,  
WFP Emergency  
© World Food Programme 2020



# Sentinel Asia DAN/DPN Role



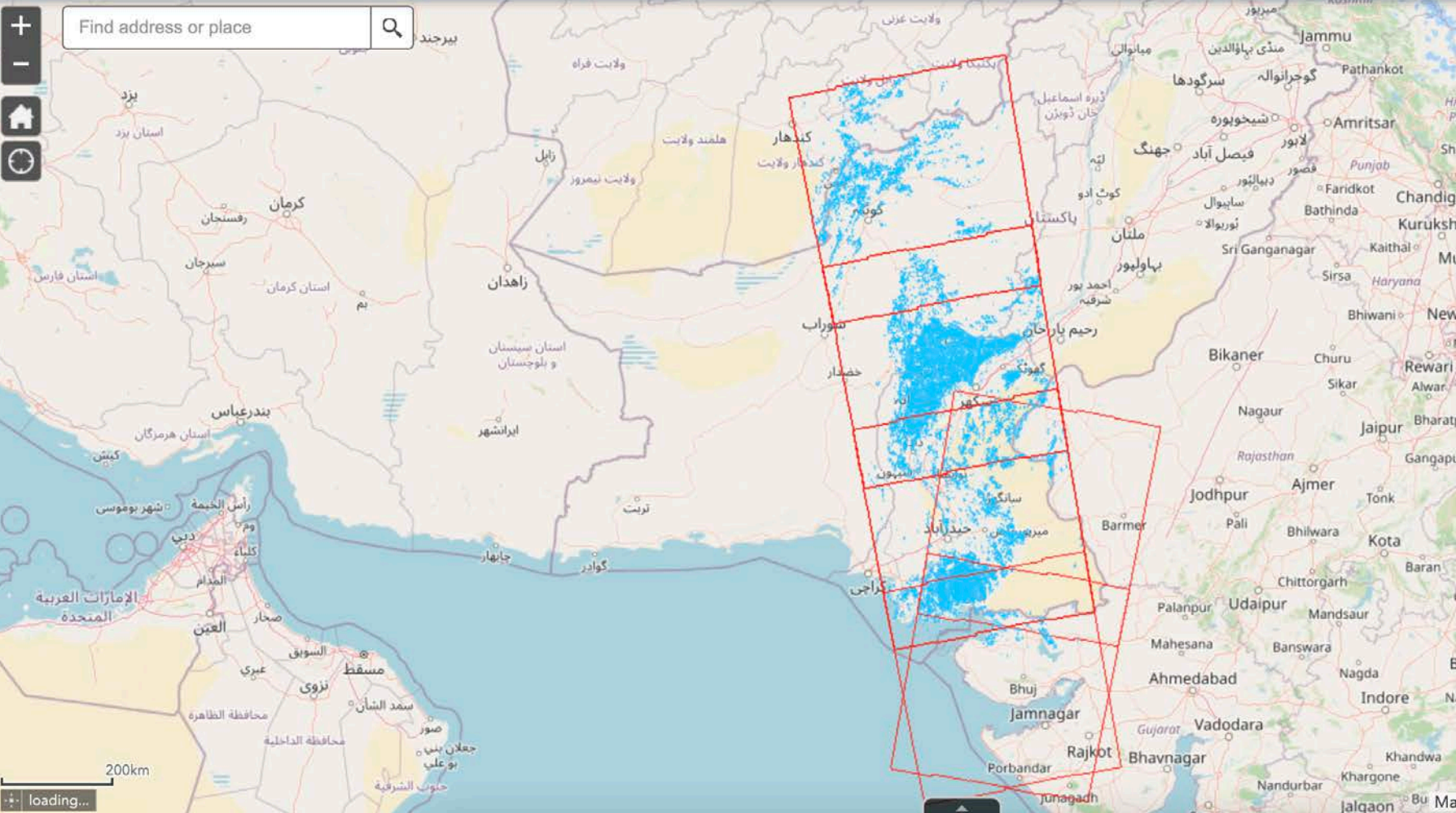
Flood in Pakistan on 17 August, 2022



Value Added Products

Sentinel Asia Portal

Value Added Products



About

Red frame indicates the analyzed area.

Blue indicates detected flood water.

\*Note that the detected water may also include water in the cultivated areas.

\*Note that it shows estimated flood area at the time of satellite observation.

Data Sources:

EOS Flood Proxy Map by ALOS-2 2022-08-21

Analyzed by EOS based on the following satellite images:

Pre-disaster: ALOS-2, 19 September, 2021

Post-disaster: ALOS-2, 21 August, 2022



AIT by ALOS-2 2022-08-31

Analyzed by GIC/AIT based on the following satellite images:

Pre-disaster: ALOS-2, 20 July, 2021

Post-disaster: ALOS-2, 31 August, 2022



AIT by ALOS-2 2022-08-21

Analyzed by GIC/AIT based on the following satellite images:

Pre-disaster: ALOS-2, 19 September, 2021

Post-disaster: ALOS-2, 21 August, 2022



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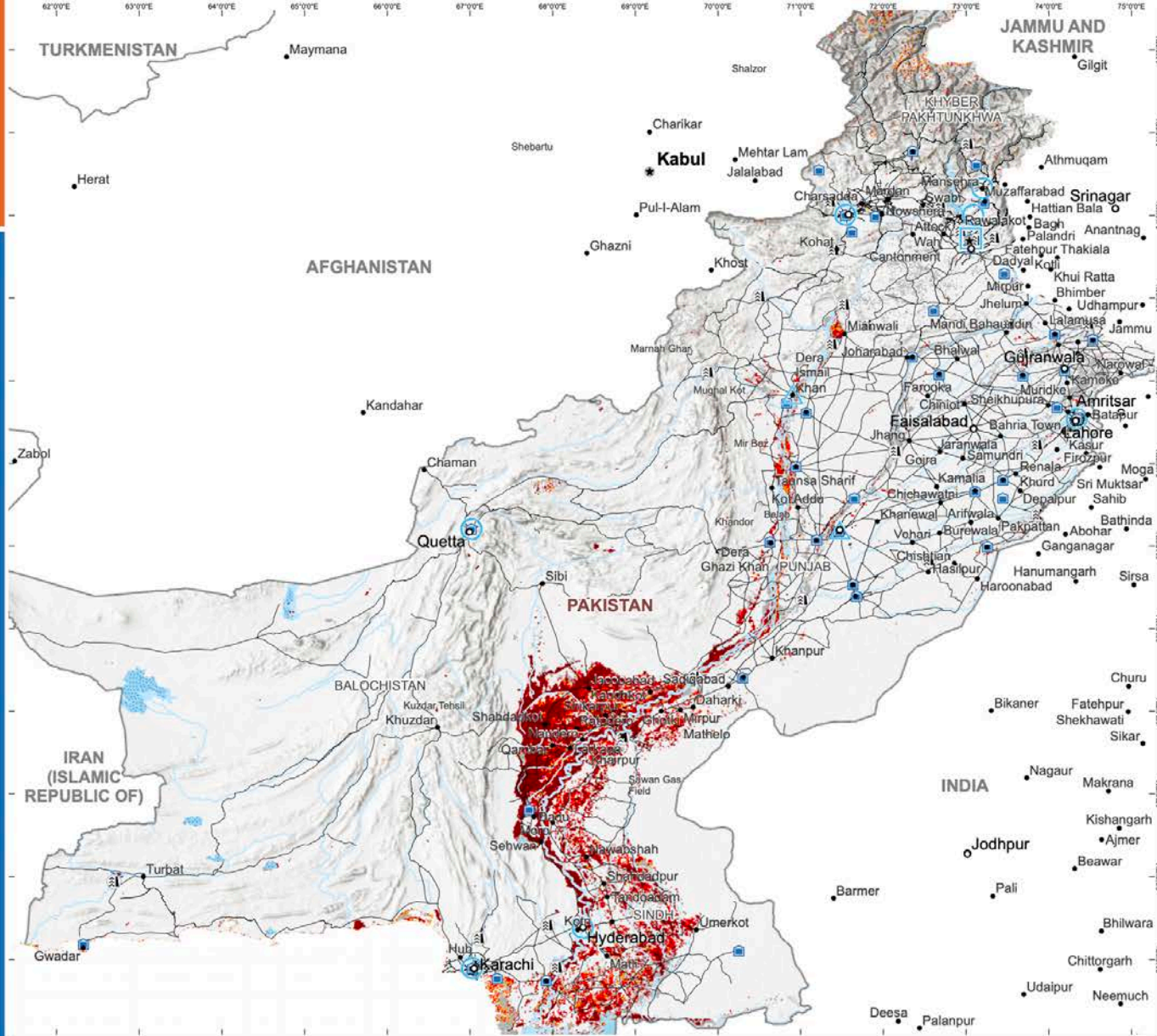




FLOOD

Pakistan

Satellite observed water extent as of 08 Sep 2022



- Country Office
- Field Office
- Sub Office
- Warehouse
- National Capital
- Major City
- City
- River
- Road
- International Boundary
- Administrative Boundary 1
- Special boundary line; Armistice, undetermined or administrative line; Autonomous region boundary; Other; Sovereign base limit
- Permanent Water Bodies
- Dam / Reservoir

- Partly flooded
  - Moderately flooded
  - Highly flooded
  - Historical Maximum Flood Extent MODIS 2000 - 20018
- \*Satellite Observed Flooding (NOAA VIIRS)
- \*Flooded pixel definition:  
 Partly flooded: 0 - 20% of pixel is with water  
 Moderately flooded: 20-60% of pixel with water  
 Highly flooded: 60-100% of pixel with water
- Population of Concern (UNHCR)  
 Source: DFO and Cloud2Street

### Rapid Flood Impact Summary

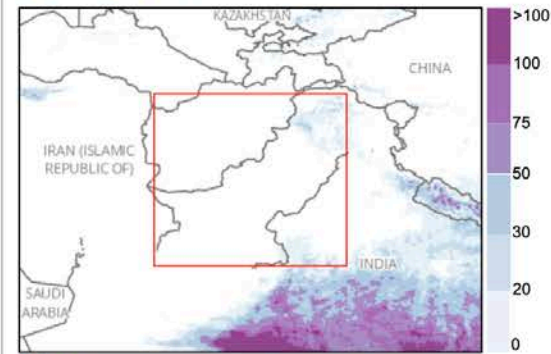
**3,466,220**  
Total observed flooded or inundated area (hectares)

**11,601,098**  
Total number of people living in the flooded pixel

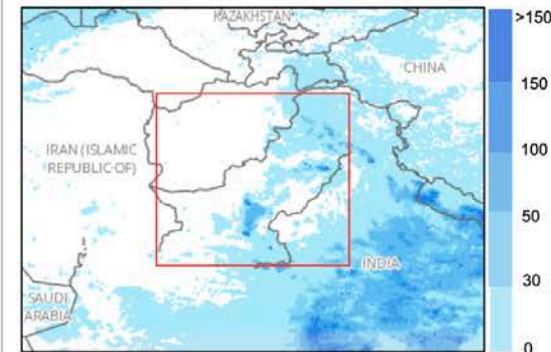
**3,217,039**  
Total flooded cropland areas

**3,825,379**  
Total number of vulnerable population in the flooded area

### 5-days precipitation forecast



### 7-days past accumulated precipitation



**ADAM**  
Automated Disaster Analysis and Mapping  
ADAM Flood Event

In partnership with  
  
  
 Joint Research Centre

The designations employed and the presentation of material in the map(s) do not imply the expression of any opinion on the part of WFP concerning the legal or constitutional status of any country, territory, city or sea, or concerning the delimitation of its frontiers or boundaries.

Data sources: WFP offices; WFP - Boundaries; UN Map; WFP - Roads; ©OpenStreetMap Contributors - Populated places; GeoNames - Accumulated rainfall: GPM - Weather forecast: ECMWF - Flood Detection: NOAA-VIIRS, MODIS NRT, ESA Sentinel 1 - IDP/Refugee Locations: UNHCR - Terrain: ESRI - Surface Water/Seasonality: JRC - Cropland Mask: NASA GFSAD30 - Population: WorldPop / GHSL - Maximum Flood Extent: NASA MODIS/DF0 and C2S



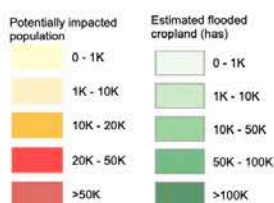
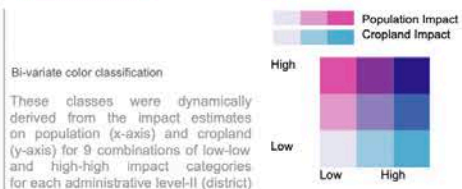
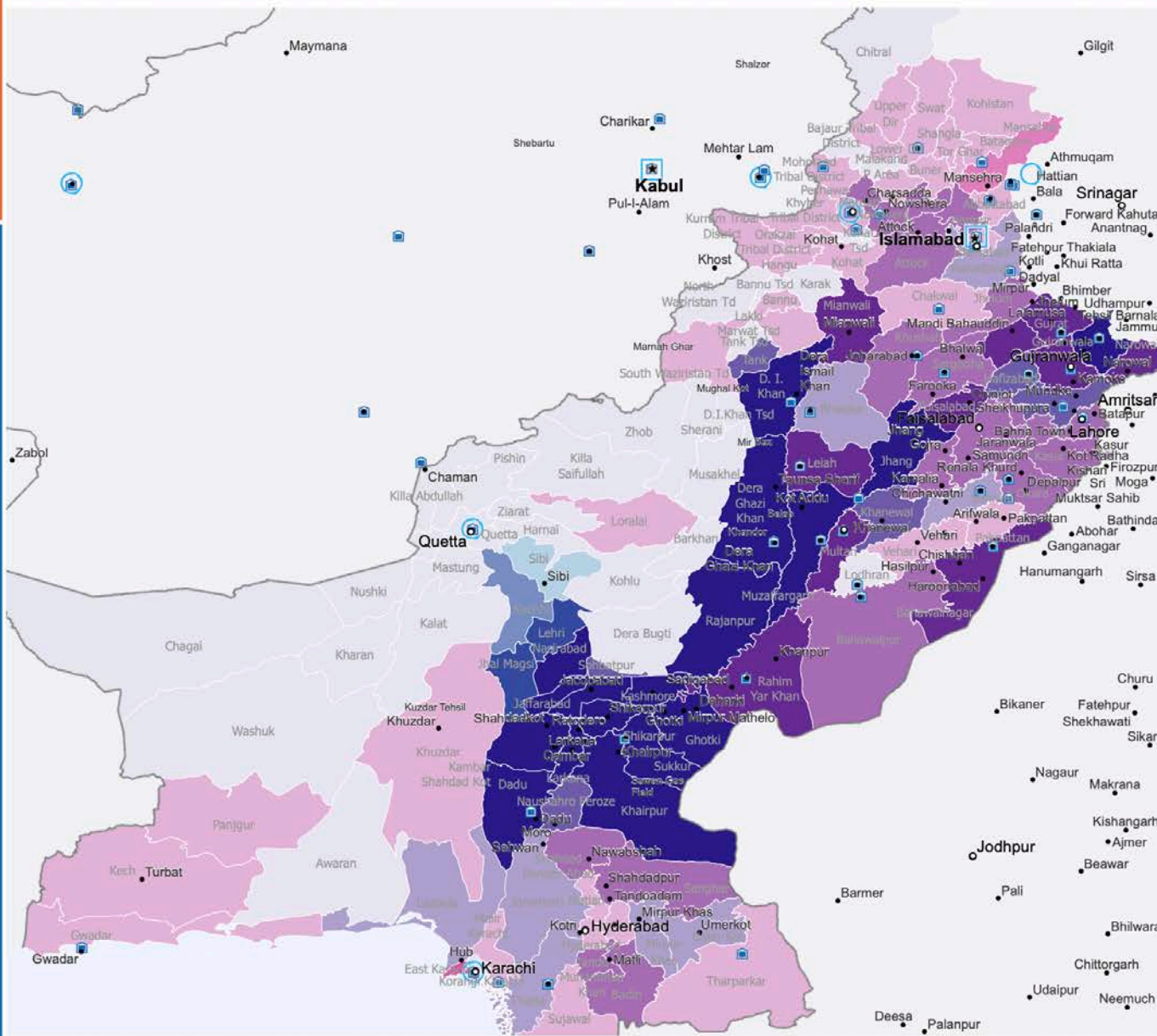




FLOOD

Pakistan

Flood Impact Aggregation



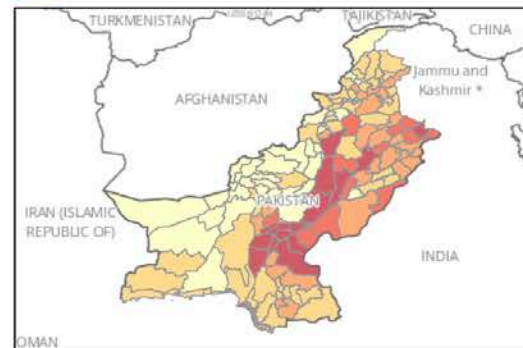
### Flood Impact Data Aggregation

Derived data are summarized by administrative unit II (admin2). For any boundary related concerns, please write to wfp.adam@wfp.org. This aggregated information is indicative and for planning purposes only.

Global Data Sources:  
Population - WorldPop 2021  
Cropland Areas - NASA GFSAD30



### Estimated population living within the flooded area (Admin Unit II)



### Estimated crop lands within the flooded area (Admin Unit II)



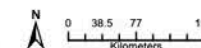
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Automated Disaster Analysis and Mapping

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Data sources: WFP offices; WFP - Boundaries; UN Map; WFP - Roads; ©OpenStreetMap Contributors - Populated places; GeoNames - Accumulated rainfall; GPM - Weather forecast; ECMWF

Date Created: 08 Sep 2022 - Contact: hq.gis@wfp.org  
Map Reference: Stair\_dashboard\_prod\_v1



Prepared by:  
HQ GIS Unit,  
WFP Emergencies



World Food Programme



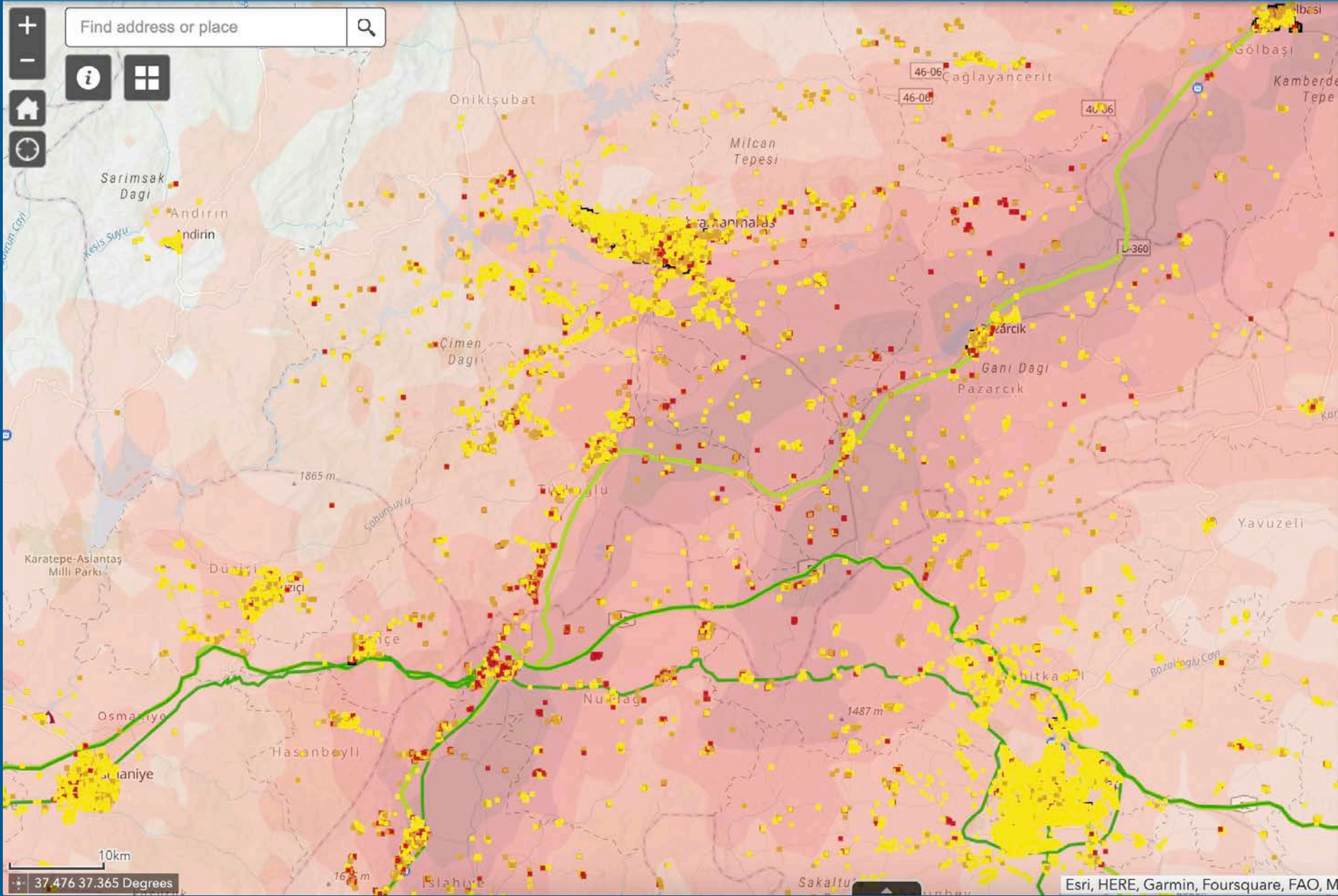
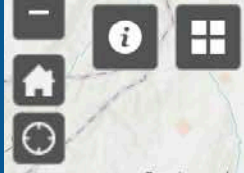


### Legend

- Temporary Camp (Copernicus)
  - Open
- Damaged Buildings (Ministry of Urbanization)
  - Building collapsed
  - Heavily damaged building
  - Slightly damaged building
- Syria - Damage Analysis (Copernicus)
  - Damage structure
  - Potentially damaged structure
- Turkey - Damage Analysis (Copernicus)
  - Damaged
  - Destroyed
  - Possibly damaged
- Refugee/IDP Camp
  - Open
- Municipal Community Kitchens
  - Open
- Earthquake Epicentres
  - Open
- Road Access Constraints
  - Passable



Find address or place



### Layer List

- Assisted Beneficiaries as of 01 April 2023
- Syria - Damage Analysis (Copernicus)
- Turkey - Damage Analysis (Copernicus)
- Percentage of Potentially Affected Population
- Refugee/IDP Camp
- Municipal Community Kitchens
- Earthquake Epicentres
- WFP Facilities
- WFP Warehouses
- Border Crossing Points
- Airport Status
- Airports
- Ports
- Road Access Constraints
- Earthquake Intensity (MMI)
- Supply Routes
- Population Change (Facebook as of 01 March 2023)
- Shakemap

37.476 37.365 Degrees

# ADAM

Advanced Disaster Analysis & Mapping

## Flood Impact Analysis Myanmar

16 May 2023



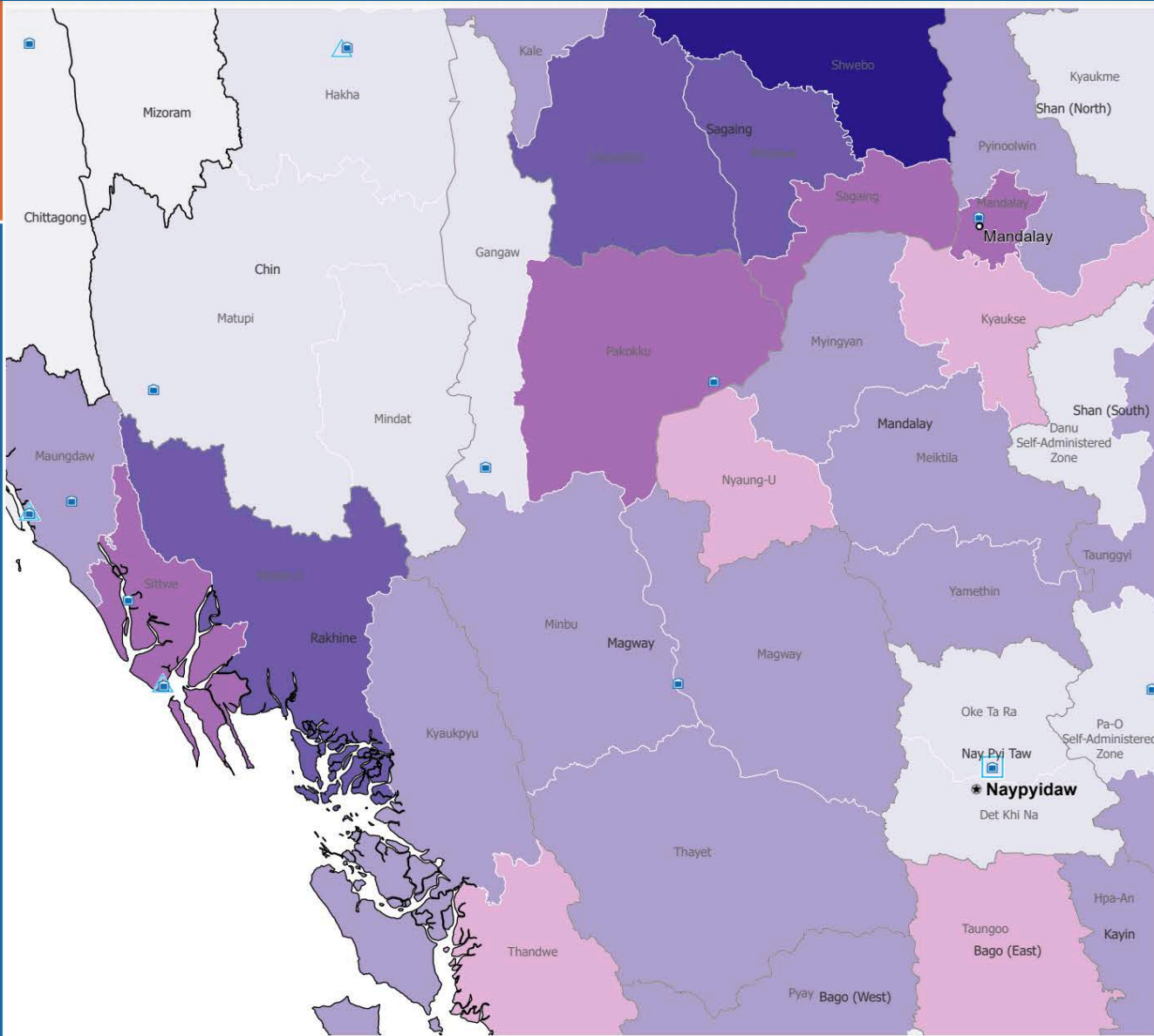




FLOOD

Myanmar

Flood Impact Aggregation



<ul style="list-style-type: none"> <li> Country Office</li> <li> Field Office</li> <li> Sub Office</li> <li> Warehouse</li> <li> National Capital</li> <li> Major City</li> <li> City</li> </ul>	<ul style="list-style-type: none"> <li> International Boundary</li> <li> Administrative Boundary 1</li> <li> Special boundary line; Armistice, undetermined or administrative line; Autonomous region boundary; Other; Sovereign base limit</li> </ul>	<p>Potentially impacted population</p> <ul style="list-style-type: none"> <li> 0 - 1K</li> <li> 1K - 10K</li> <li> 10K - 20K</li> <li> 20K - 50K</li> <li> 50K - 100K</li> <li> &gt;100K</li> </ul>	<p>Estimated flooded cropland (has)</p> <ul style="list-style-type: none"> <li> 0 - 1K</li> <li> 1K - 10K</li> <li> 10K - 50K</li> <li> 50K - 100K</li> <li> &gt;100K</li> </ul>	<p><b>Bi-variate color classification (Main Map Frame)</b></p> <p>Population Impact Cropland Impact</p> <table border="1"> <tr> <td>High</td> <td></td> <td></td> </tr> <tr> <td>Low</td> <td></td> <td></td> </tr> </table> <p>These classes were dynamically derived from the impact estimates on population (Y-axis) and cropland (X-axis) for 9 combinations of low-low and high-high combined impact categories for each administrative level-II (district)</p>	High			Low		
High										
Low										

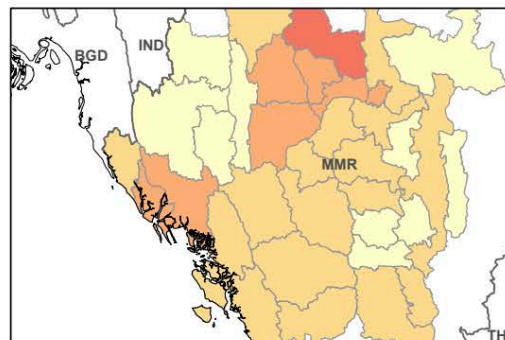


### Flood Impact Data Aggregation

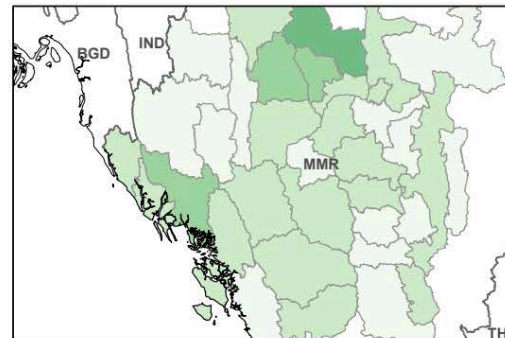
Derived data are summarized by administrative unit II (admin2). For any boundary related concerns, please write to [wfp.adam@wfp.org](mailto:wfp.adam@wfp.org). This aggregated information is indicative and for planning purposes only.

Global Data Sources:  
 Population - WorldPop 2022  
 Cropland Areas - NASA GFSAD30

#### Estimated population living within the flooded area (Admin Unit II)



#### Estimated crop lands within the flooded area (Admin Unit II)



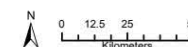
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Data sources: WFP offices; WFP - Boundaries; UN Map; WFP - Roads; ©OpenStreetMap Contributors - Populated places; GeoNames - Accumulated rainfall; GPM - Weather forecast; ECMWF

Date Created: 16 May 2023 - Contact: [hq.gis@wfp.org](mailto:hq.gis@wfp.org)  
 Map Reference: ADAM\_Floods





# Myanmar Flooding

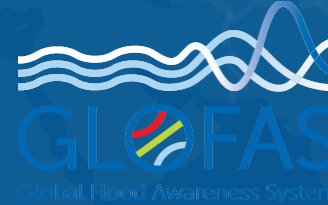
## Rapid Impact Analysis Breakdown

Fit to page

*\*estimated number of people living in the flooded areas with at least 100 people potentially affected per district. Vulnerable population within flooded area are estimates from WorldPop data.*

(Admin unit 1) Region	(Admin unit 2) District	Flooded Area (hectares)	Flooded Cropland (hectares)	Potentially Impacted Population*		
				Total in District	Children (0-9 y.o.)	Elderly (>60 y.o.)
Bago (East)	Taungoo	1,588	965	4,089	455	662
Bago (West)	Pyay	4,323	2,525	9,252	1,033	1,497
Chin	Matupi	691	51	360	32	89
Kayin	Hpa-An	2,944	2,518	9,540	918	2,019
Magway	Gangaw	422	89	151	18	26
	Magway	8,300	3,448	16,208	2,016	2,502
Mandalay	Minbu	7,922	3,861	8,375	1,042	1,293
	Pakokku	11,953	6,241	21,424	2,650	3,316
	Thayet	2,442	1,490	8,182	1,018	1,263
	Kyaukse	1,417	490	2,333	253	342
	Mandalay	2,581	2,155	48,326	5,239	7,101
	Meiktila	1,386	1,098	5,575	605	815
	Myingyan	4,418	3,381	7,610	847	1,182
	Nyaung-U	2,708	828	7,670	868	1,140
	Pyinoolwin	10,240	7,049	19,261	2,088	2,827
	Yamethin	1,402	1,101	2,910	316	425
Nay Pyi Taw	Det Khi Na	446	295	740	75	112
	Oke Ta Ra	777	581	606	66	89
Rakhine	Kyaukpyu	8,955	3,247	11,622	1,316	2,007
	Maungdaw	5,069	4,652	4,088	421	749
	Mrauk-U	20,437	10,981	26,719	3,023	4,622
	Sittwe	14,478	9,221	27,012	3,059	4,664
Sagaing	Thandwe	4,921	550	5,475	620	945
	Kale	2,095	1,253	3,269	350	538
	Monywa	20,246	17,119	30,160	3,229	4,950

# WFP ADAM Partners





A faint, light blue world map is visible in the background of the slide, centered behind the text.

**Thank you!**