Papua New Guinea

Earthquake | February 2018

VERSION 1

Date released: 06 March 2018

This report focuses on the most affected areas only. Estimates are based on available evidence to date and may change upon new information becoming available.

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PAPUA NEW GUINEA
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Geographic impact

On February 26, a magnitude-7.5 earthquake hit Papua New Guinea at a depth of 35 km, with the epicenter about 89 kilometers southwest of Porgera in Enga province. A series of aftershocks, most at magnitude-6 have occurred through March 5th. Severe damage has been caused in 59 LLGs and affecting 23 district in 9 provinces.

Geographical profile

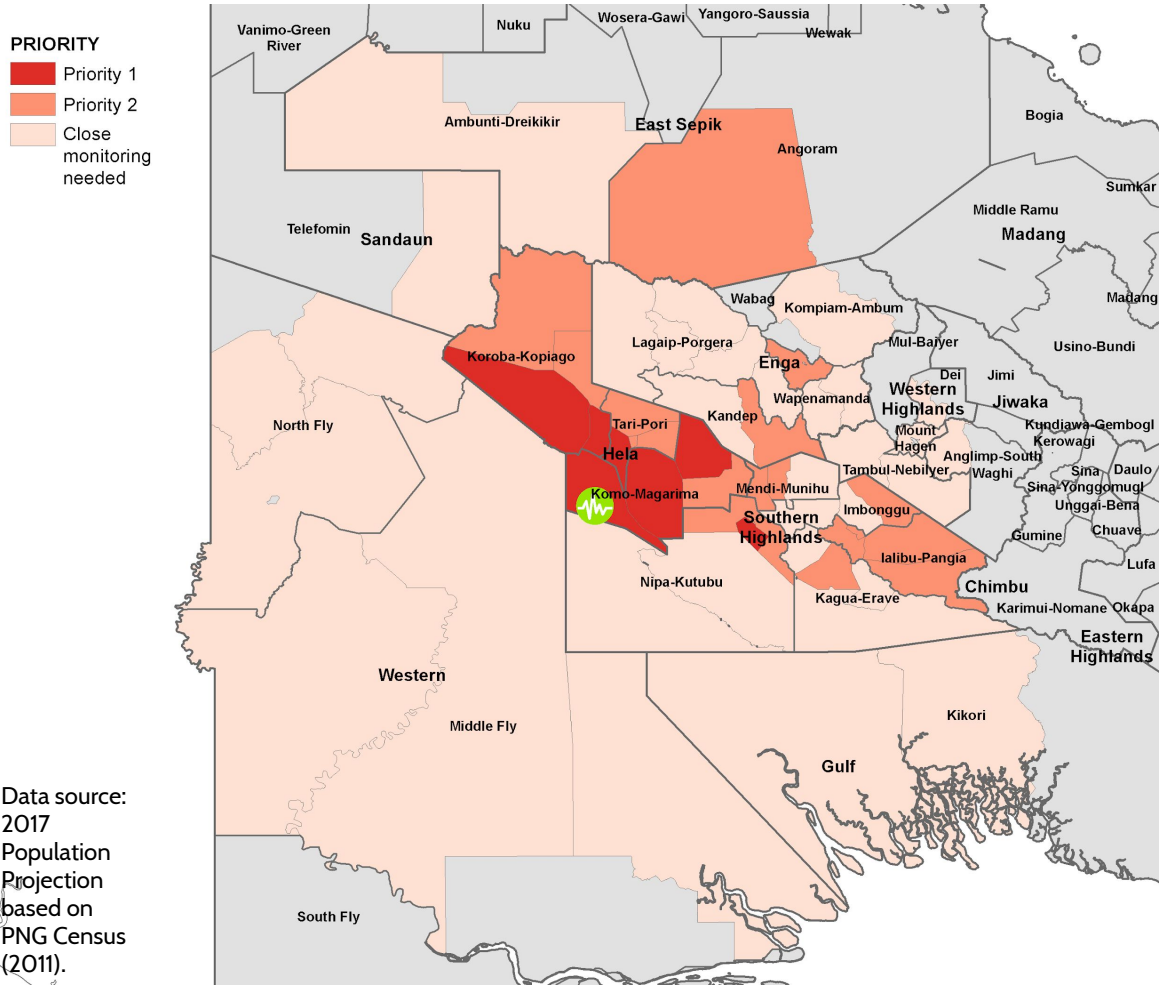
- **Epicenter** in Hela province, Highlands region
- **9 Provinces, 23 Districts** affected (Earthquake intensity 6.0 and above)

Profile of the affected population

- **~1,560,000** people exposed to extreme disaster in worst impacted LLGs.
- **~681,000** people likely in need of immediate assistance (Priority 1 and 2)
- **~277,000** extremely food insecure people. (Priority 1 and 2)

Livelihood profile

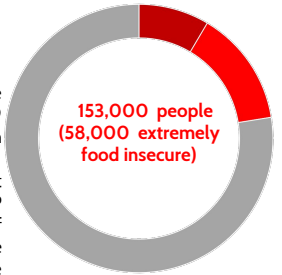
- **Subsistence Agriculture is the dominant livelihood**
- **Livestock rearing Is a key livelihood in some areas**
- **The area has vast mining concessions with operations by Exxon Mobil, Oil Search, OK Tedi & Barrick Gold Corp**



Priority 1

~153,000 likely in immediate need of humanitarian assistance

The 7 LLGs within this classification are those where most of the population were hit by intensity 8 and 9 earthquake on the scale of 1 to 10 and experience a high level of food insecurity (>40%). Approximately 153,000 people reside in these areas and need urgent humanitarian assistance. According to the latest WFP mobile VAM (mVAM) food security assessment of December 2017, approximately 58,000 people were already identified as extremely food insecure. The recent earthquake has further compromised food security in these areas.



Priority 2

~528,000 likely in need of humanitarian assistance

Households within this classification reside within 19 LLGs experiencing moderate geographic impact and having a food insecurity prevalence between 20 % and 40% (mVAM, December 2017). Among 528,000 people in these LLGs who are in need of immediate assistance, about 220,000 people were already extremely food insecure. It is highly likely that people from Priority 1 LLGs may start moving into neighbouring LLGs for temporary shelter.

~878,000 likely in need of close monitoring for humanitarian assistance

Households within this classification reside within 33 LLGs struck mainly by intensity 6 earthquake and having a food insecurity prevalence of <10%. Among 878,000 people of these LLGs who need close monitoring for humanitarian assistance, around 231,000 people in these areas were already extremely food insecure.

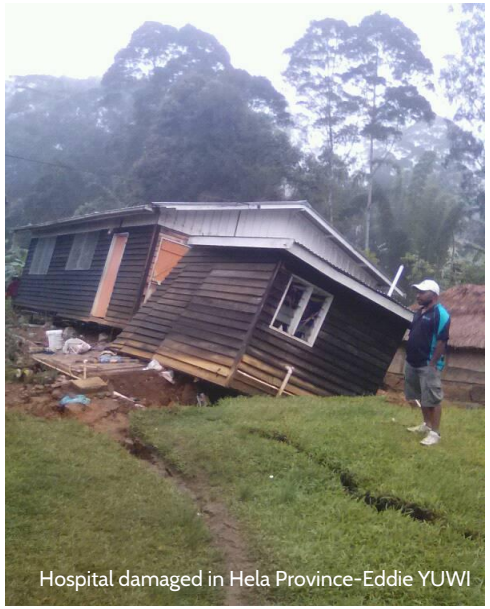
Data source: 2017 Population Projection based on PNG Census (2011).

Note: Numbers on this page are rounded to the nearest thousand.

HUMANITARIAN NEEDS ESTIMATES

Note: Numbers on this page are rounded to the nearest thousand.

	Priority 1	Priority 2	Priority 3	Total	Assumption
Male (all age groups)	79,000	272,000	430,000	781,000	The number of male & female are 2017 population projection based on PNG census (2011) and rounded to the nearest thousand. The number of children <5 yrs and infant are results from PNG census 2011.
Female (all age groups)	74,000	256,000	406,000	736,000	
Children < 5yrs	27,000	95,000	89,000	211,000	
Infant	11,000	36,000	42,000	89,000	
Rice(kg)	428,000	1,478,000	2,340,000	4,246,000	2.8 kg rice weekly/person
Drinking water (thousand litre)	2,600	9,200	14,600	26,400	17.5 litre drinking water weekly/person
Clean water (thousand litre)	10,200	35,000	56,000	101,200	67 litre clean water weekly/person
Toilet	7,600	26,400	41,800	75,800	1 toilet every 20 people



Hospital damaged in Hela Province-Eddie YUWI

Rescue teams in Hela province- Eddie YUWI

Data Source: 2017 Population Projection based on PNG Census (2011);) See more on the methodology of needs estimate in Additional Information.

OVERVIEW

Contextual background

Resilience:

Most of the kaukau crop gardens are in hilly areas - which may be prone to landslides, and sago gardens are in valleys along the river/swamps - which may be prone to flooding.

The earthquake affected areas are prone to erratic rain conditions - either flooding or drought, which affect crop production. Considering the substantial dependency of much of the population on garden-crop agriculture, resilience to cope with adverse shocks, be it climate-related or otherwise, is limited.

Security:

Security is a major issue, mainly linked to inter-tribal conflict. The affected areas are not safe for humanitarian workers without army/police escorts. Also, tribal conflicts may add further challenges to the accessibility of affected areas and make the delivery of humanitarian assistance highly difficult.

Exacerbated food security bears the risk of fuelling violence.

Livelihood profile

Livelihoods:

Garden crop production and livestock keeping are the dominant income generating activities within the earthquake-affected area. mVAM historical livelihood analysis shows that households dependent on livestock-keeping and garden crops as their main source of income are more vulnerable to being severely food insecure than their peers.

WASH, Gender & Protection

Water & Child Health:

According to the most recent mVAM survey, supply of drinking water prior to the earthquake was relatively good, and historical data showed a substantial improvement in community water over the last two years. Similarly, the rate of reported child illness amongst households with children continued to show a gradual decline. However, preliminary IOM field data collection (as of March 1) revealed that potable water was a priority need within affected communities as water contamination has been a direct consequence of the earthquake.

Gender:

Papua New Guinea (PNG) is considered to be one of the most dangerous places in the world to be a woman. An estimated 70 percent of women in Papua New Guinea experience rape or assault in their lifetime, and women in PNG also face systemic discrimination.

Protection:

The risk of tribal fighting and the security of female beneficiaries would need to be considered when planning and implementing humanitarian distributions.

Food security

Food security:

Food insecurity among the affected population is a major concern, in view of the already severe food insecurity and malnutrition levels in some areas before the earthquake hit.

About 37 percent of the population (approximately 58,000 people) of the seven extremely affected LLGs (Priority 1) were estimated to be severely food insecure according to the Food Insecurity Experience Scale (FIES), an official SDG 2 indicator. Four LLGs were deemed as **"food insecurity hotspots"** (with 40% or higher prevalence of households considered to be severely food insecure): **Komo Rural, Nembi Plateau Rural, South Koroba Rural,** and **Upper Wage LLGs.** Households from **Nembi Plateau Rural, North Koroba Rural, and Upper Wage LLGs** reported facing extreme shortage of food supply (see page 7).

Within the 19 severely affected (Priority 2) LLGs, approximately 42 percent of the population is estimated to be severely food insecure.

Markets

Supply of staple commodities:

According to the latest mVAM data, most of the earthquake-affected areas faced some shortage of supply of staple crops prior to the earthquake; **North Koroba Rural LLG** reportedly faced extreme shortage. These areas experienced substantially above-normal temperatures between August and October 2017, and reported incidence of drought which impacted staple crop production (mainly **kaukau** and **sago** in this part of the country). As Kaukau takes about 8 months to harvest, supplies are expected to remain very constrained.

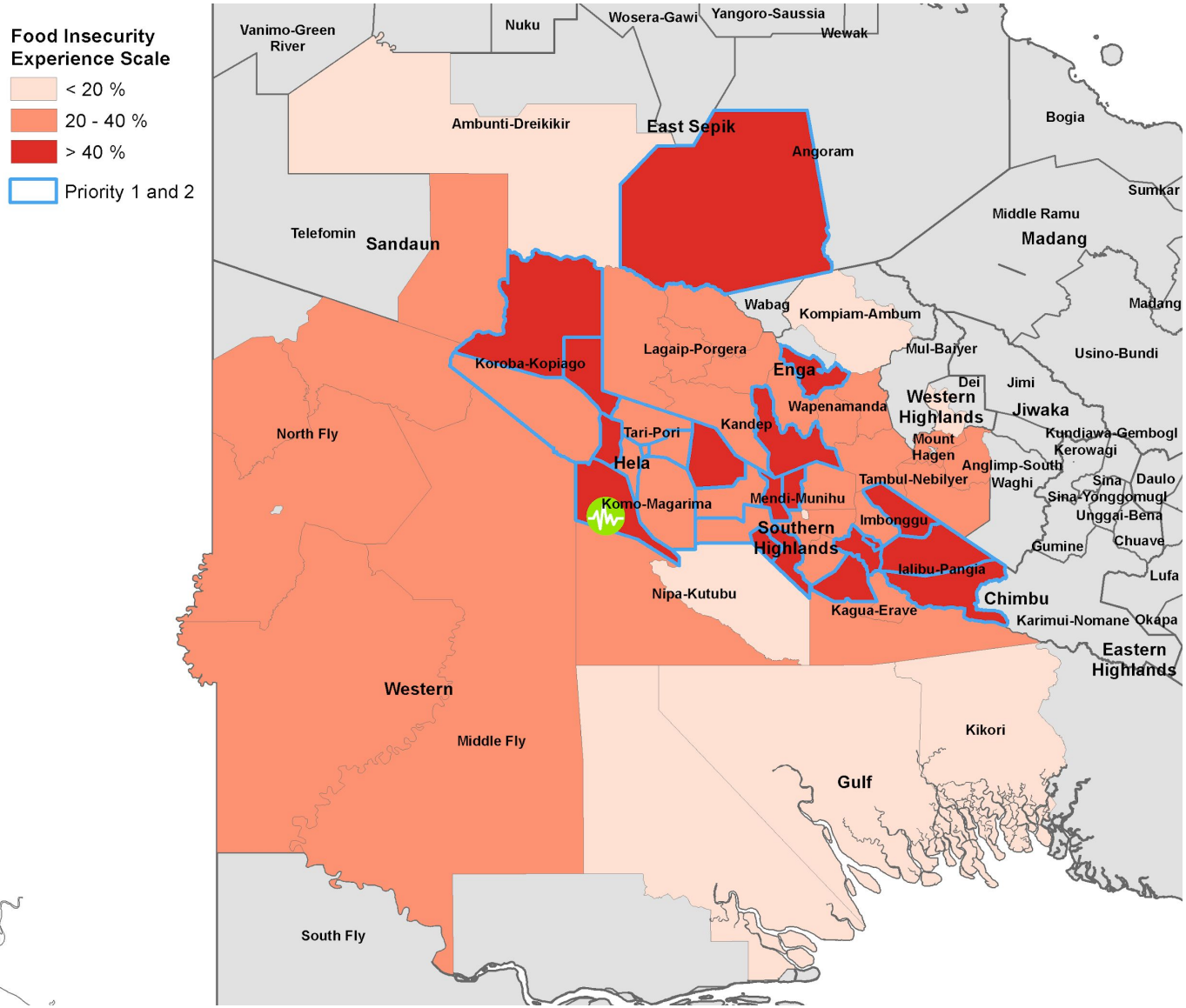
Prices of staple commodities:

Within the Priority 1 LLGs, in December 2017 the average price of kaukau was about 2.8 KPG/unit, and the price of sago was reported at 3 KPG/unit in Lake Kutubu Rural LLG. In North Koroba Rural LLG, where an extreme shortage of kaukau supply was reported, the average price was nearly double the average at 5 KPG/unit.

Meanwhile the average price of rice was about 5.70 KPG/kilo, which is in line with the national median reported price of rice, which has remained stable at around 5PGK per kilo for nearly the past two years.

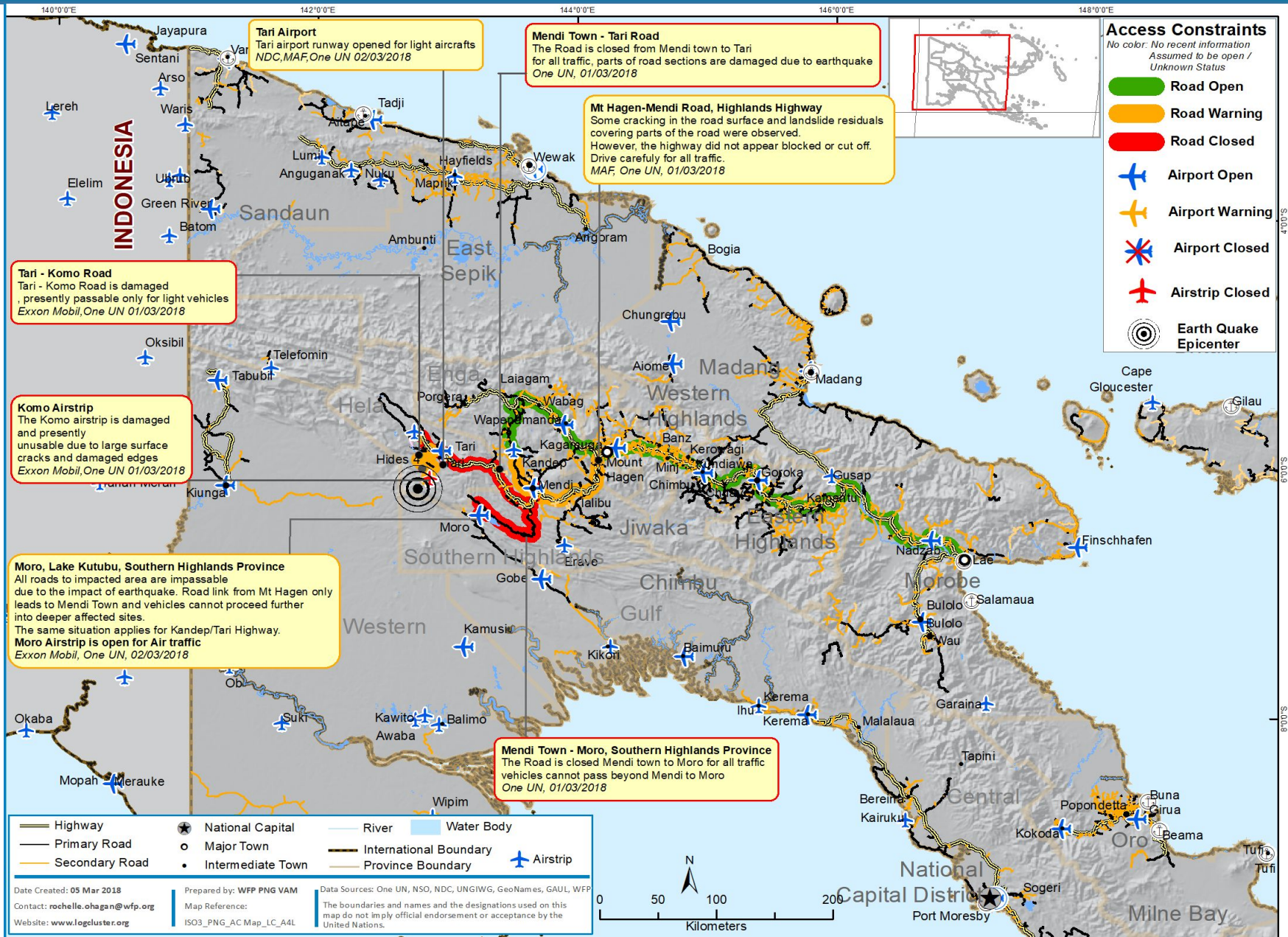
SUPPLEMENTARY INFORMATION-Food insecurity

Food Insecurity: % of population in affected LLGs estimated to be severely food insecure (FIES)



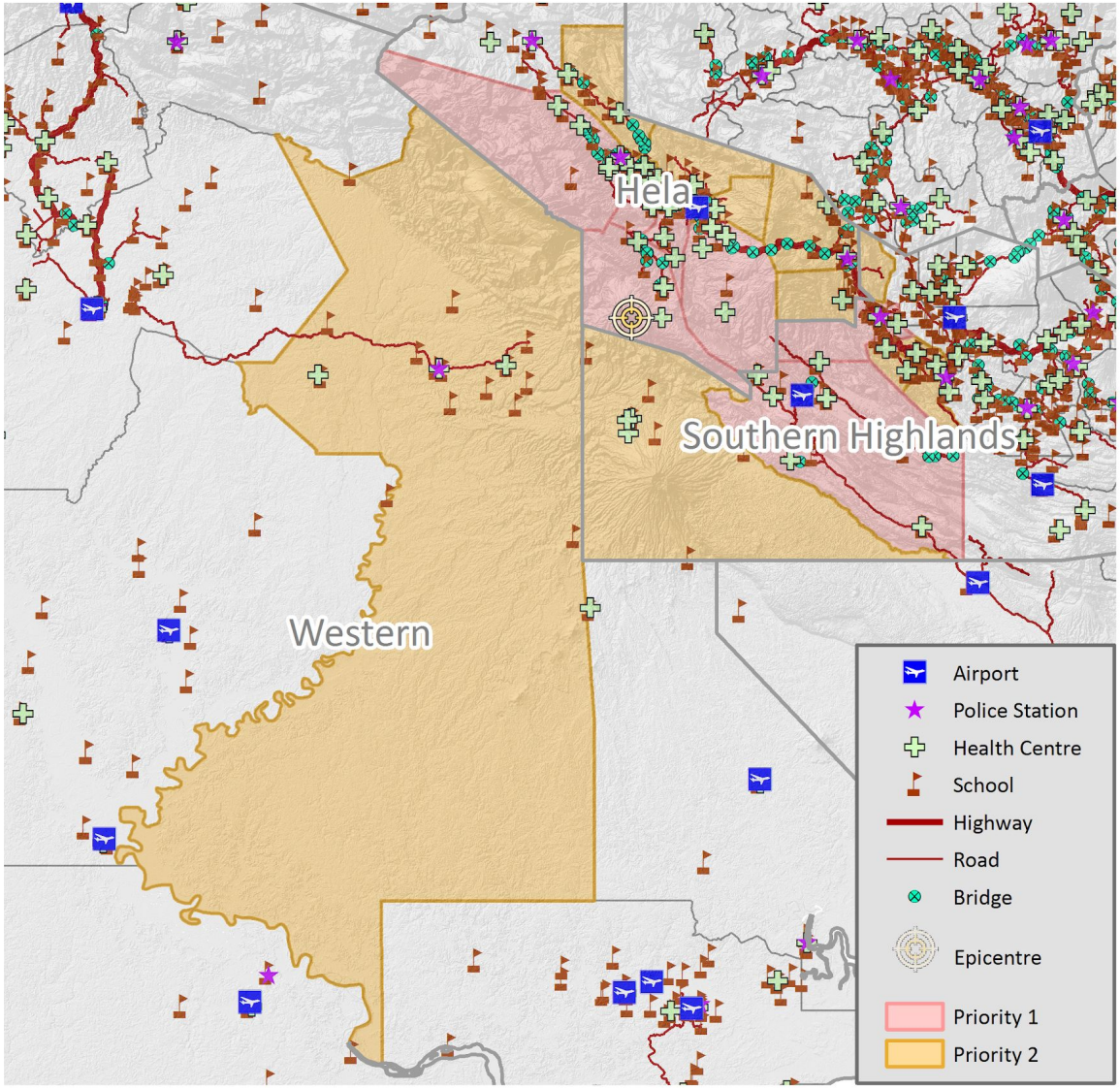
Data Source: mVAM survey, February 2018

SUPPLEMENTARY INFORMATION-Access Constraints as of Mar.5



SUPPLEMENTARY INFORMATION-Infrastructure

Infrastructure : Location of airports, police stations, health centres and schools in affected LLGs



Moro Road damaged-Maggy

Data Source: WFP / Spatial Database Infrastructure

DETAILS - Demographic & Vulnerability Characteristics of Priority 1 Affected LLGs

Provice	District	LLG	Total affected population (From 2017 population projections)	# Male (all age groups)	# Female(all age groups)	Children under 5 yrs	Infant	% Population severely food insecure (FIES)	# People severely food insecure (FIES)	Food Supply	Hunger	Main staple Crop	Staple crop supply
Hela	Tari-Pori	Hayapuga Rural	18,047	9,384	8,663	4,685	2,100	31%	5,617	Some shortage	Some	Kaukau	Some shortage
Hela	Komo-Magarima	Hulia Rural	41,642	21,654	19,988	4,158	1,991	28%	11,664	Some shortage	Many	Kaukau	Some shortage
Hela	Komo-Magarima	***Komo Rural**	18.907	9,832	9,075	4,430	2,029	**44%**	8,266	Some shortage	Many	Kaukau	Some shortage
Southern Highlands	Nipa-Kutubu	***Nembi Plateau Rural**	25,216	12,860	12,356	4,670	1,951	**47%**	11,751	Extreme shortage	Many	Kaukau	Extreme shortage
Hela	Koroba-Kopiago	North Koroba Rural	13,631	6,952	6,679	3,733	1,536	39%	5,415	Extreme shortage	Many	Kaukau	Extreme shortage
Hela	Koroba-Kopiago	***South Koroba Rural**	20.938	11,097	9,841	5,548	1,949	**42%**	8,831	Some shortage	Many	Kaukau	Some shortage
Hela	Komo-Magarima	***Upper Wage**	14950	7,546	7,404	No Data	No Data	**40%**	6,016	Extreme shortage	Many	Kaukau	Extreme shortage

Data Source: 2017 Population Projection based on PNG Census (2011); WFP mVAM survey, February 2018
**Designates that the LLG is considered to be a "food insecurity hotspot" as according to mVAM December 2017 data*

DETAILS - Demographic & Vulnerability Characteristics of Priority 2 Affected LLGs

Provice	District	LLG	Total affected population (From 2017 population projections)	# Male (all age groups)	# Female(all age groups)	Children under 5 yrs	Infant	% Population severely food insecure (FIES)	# People severely food insecure (FIES)	Food Supply	Hunger	Main staple Crop	Staple crop supply
Hela	Koroba-Kopiago	***AWI/PORI RURAL**	21198	11023	10175	4746	1546	**50%**	10679	Extreme shortage	Many	Kaukau	Extreme shortage
Southern Highlands	Ialibu-Pangia	***EAST PANGIA RURAL**	15580	7946	7634	2396	845	**44%**	6816	Some shortage	Many	Kaukau	Some shortage
Southern Highlands	Ialibu-Pangia	***IALIBU UBAN**	6914	3388	3526	1220	502	**45%**	3135	Some shortage	Many	Kaukau	Some shortage
Southern Highlands	Imbonggu	***IMBONGGU RURAL**	25156	12800	12356	5330	2004	**44%**	11008	Some shortage	Some	Kaukau	Some shortage
Southern Highlands	Kagua-Erave	***KAGUA RURAL**	27338	14216	13122	10494	4882	**48%**	13053	Extreme shortage	Many	Kaukau	Some shortage
Enga	Kandep	***KANDEP RURAL**	42438	22068	20370	6143	2366	**44%**	18667	Extreme shortage	Many	Kaukau	Extreme shortage
East Sepik	Angoram	***KARAWARI RURAL**	14204	7386	6818	403	251	**45%**	6353	Some shortage	Some	Sago	Some shortage
Southern Highlands	Mendi-Munihu	***KARINTS RURAL**	34194	17439	16755	5340	1867	**44%**	14939	Some shortage	Many	Kaukau	Extreme shortage
Southern Highlands	Ialibu-Pangia	***KEWABI RURAL**	14300	7436	6864	3785	1803	**47%**	6700	Extreme shortage	Many	Kaukau	Some shortage
Southern Highlands	Mendi-Munihu	***LAI VALLEY RURAL**	55096	28650	26446	7422	2456	**44%**	24467	Some shortage	Many	Kaukau	Extreme shortage
Hela	Koroba-Kopiago	***LAKE KOPIAGO RURAL**	18088	9406	8682	3406	1459	**41%**	7416	Some shortage	Some	Kaukau	Some shortage
Hela	Komo-Magarima	LOWER WAGE	20654	10408	10246	9298	3937	36%	7340	Some shortage	Some	Kaukau	Some shortage
Southern Highlands	Nipa-Kutubu	NIPA RURAL	48573	24772	23801	11616	3999	25%	12062	Some shortage	Many	Kaukau and sago	Some shortage
Southern Highlands	Nipa-Kutubu	***POROMA RURAL**	42010	21425	20585	6516	2097	**50%**	21155	Some shortage	Some	Kaukau	Some shortage
Hela	Tari-Pori	TAGALI RURAL	10672	5443	5229	3118	1104	38%	4025	Extreme shortage	Many	Kaukau	Extreme shortage
Hela	Tari-Pori	TARI URBAN	39279	20425	18854	2294	1073	30%	11780	Some shortage	Many	Kaukau	Extreme shortage
Hela	Tari-Pori	TEBI RURAL	11443	5725	5718	3287	1283	32%	3650	Some shortage	Many	Kaukau and taro	Some shortage
Enga	Wabag	***WABAG RURAL**	54431	28304	26127	6871	2410	**45%**	24293	Some shortage	Some	Kaukau	Some shortage
Southern Highlands	Ialibu-Pangia	***WIRU RURAL**	26684	14143	12541	1729	635	**47%**	12539	Some shortage	Many	Kaukau	Extreme shortage

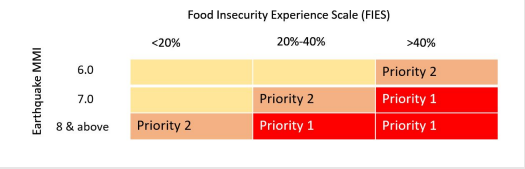
Data Source: 2017 Population Projection based on PNG Census (2011); WFP mVAM survey, February 2018
****Designates that the LLG is considered to be a "food insecurity hotspot" as according to mVAM December 2017 data***

ADDITIONAL INFORMATION

? ASSUMPTIONS

Geographic impact: Shakemaps of earthquake ground shaking are produced by the United States Geological Survey (USGS) and used by the World Food Programme to produce overall impact assessments since the main earthquake happened. The geographic impact of one LLG is decided by the MMI level of the areas where majority or the largest proportion of the population reside.

Priority areas: The classification of priority areas for this version are a result of overlaying geo-analysis of disaster impact and Food Insecurity Experience Scale, as the representative vulnerability indicator at LLG level. The classification matrix is as below:



Needs estimate: In this analysis, the InaSAFE model is adopted to make initial estimates on minimal humanitarian needs. For the InaSAFE model the following assumptions were used to calculate the needs for the estimated severely affected population:

-Each person should be provided with 2.8 kg of rice weekly;
-Each person should be provided with 17.5 liters of drinking water weekly;
-Each person should be provided with 67 liters of clean water weekly;
-A toilet should be provided for 20 every persons;

The estimates serve as a reference to understand the scale of needs on the ground. The unit need per person should be customized by national decision-makers.

REFERENCES & LINKS

1. Earthquake event: https://earthquake.usgs.gov/earthquakes/eventpage/us2000d7q6#executive
2. InaSAFE - http://inasafe.org
   InaSAFE is free software that produces realistic natural hazard impact scenarios for better planning, preparedness and response activities. Developed by Indonesian National Disaster Management Authority (BNPB), Geoscience Australia and GFDRR
3. PNG National Statistics Office, Population and social indicators http://nso.gov.pg/index.php/population-and-social/other-indicators
4. WFP PNG mVAM Round 4 Report, February 2018

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