

SOLOMON ISLANDS

Earthquake 7.8 (December 9, 2016)

Livelihood Committee Initial estimates
All information needs to be verified and may change
Date released: 16 December 2016



Geographic impact

An undersea earthquake of magnitude 7.8 occurred at 4:39 am on Friday, 9 December 2016, 62km west southwest of Kirakira, Makira Province, Solomon Islands.

Following this earthquake, a tsunami warning was issued for Makira and Temotu, and a tsunami watch for Malaita, Guadalcanal, Renbel and Isabel was put in place.

Geographical profile

Makira Island
main area of impact
3
wards highly affected

Broad ridges, stable/narrow ridges, and valleys: narrow floodplains and bouldery terraces

Profile of the affected population

1,776 households affected

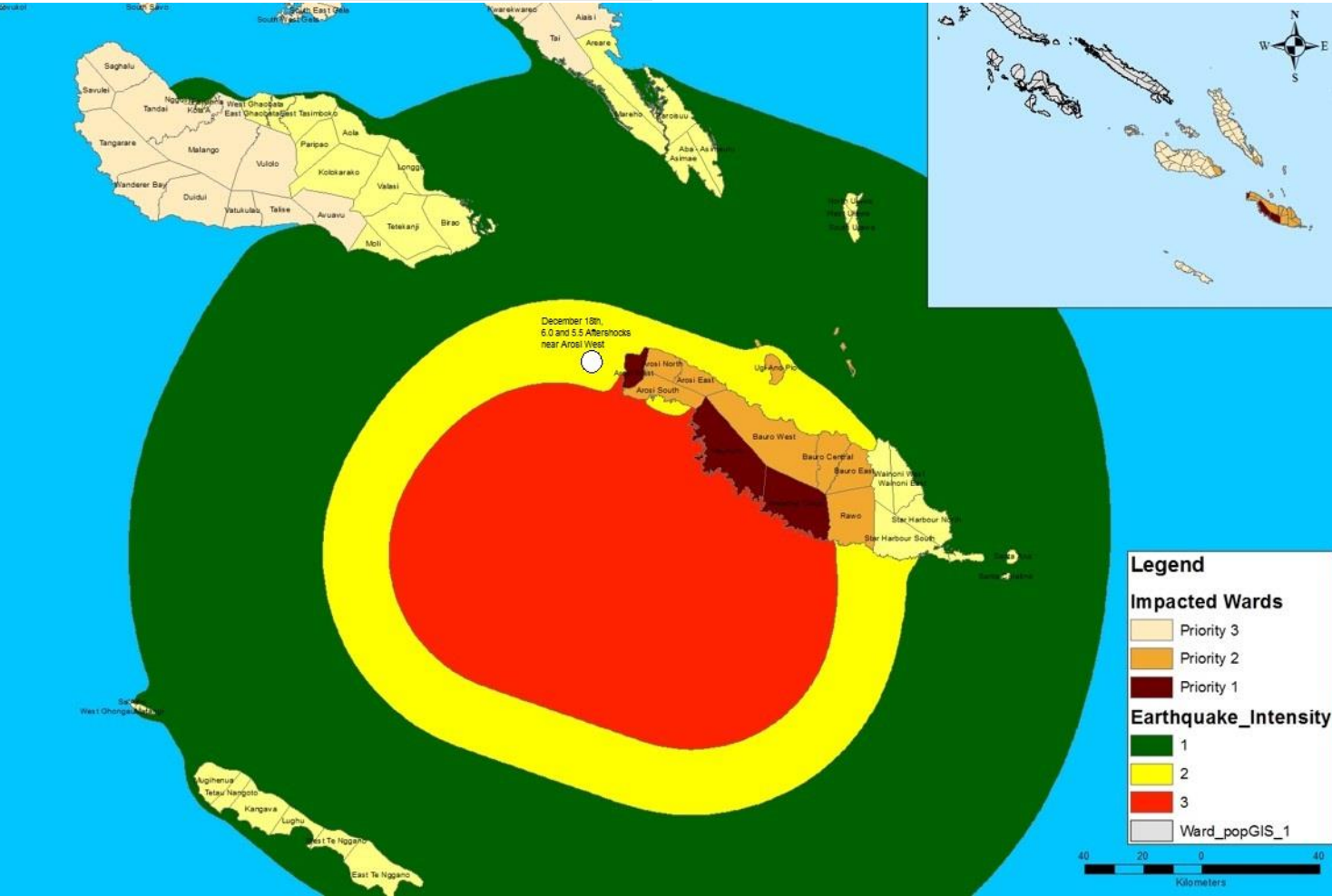
9,769 people affected

4,290 people in need of assistance

Livelihood profile

Subsistence farming and livestock raising are the dominant livelihoods

Fishing is a key economic activity



LIKELY FOOD SECURITY & LIVELIHOODS IMPACT

Priority 1 (high food security impact)
People engaged in subsistence farming and those not growing anything in the three (3) highly affected (geo-impact zone 1) wards in the island of Makira. These people are also assumed to be engaged in subsistence fishing.

4,290 people

Priority 2 (moderate food security impact)
People engaged in subsistence farming and those not growing anything in the eight (8) affected (geo-impact zone 2) wards in the island of Makira. These people are also assumed to be engaged in subsistence fishing.

8,795 people

Priority 3 (low food security impact)
People engaged in subsistence farming and those not growing anything in the 46 affected (geo-impact zone 2) wards in the island of Makira. These people are also assumed to be engaged in subsistence fishing.

44,116 people



Resilience profile

Agricultural practices: Crops grown include banana (over 200 varieties), root crops such as swamp/giant taro, cassava and fruit trees such as breadfruit. Papaya and coconut are widely available. As the number of crops are relatively diverse, it is expected that despite probable impacts on swamp/giant taro, other crops such as fruits and root crops are minimally affected, and still available as a food source.

Agricultural practices are flexible and diversified. Although the majority of the population lives near the coast, people generally have multiple gardens, including some inland and in hilly areas which are likely not affected by the tsunami. The use of multiple gardens reduces the risk of loss from this event. Crop rotation and garden shifting is practiced regularly, so farmers are familiar with the practice of harvesting planting materials from multiple locations and moving gardens elsewhere. The only exception to this is populations living in smaller islands such as Santa Catalina and Santa Ana, which due to low elevation limit the possibility of having multiple gardens.

Seasonality: It is currently the cyclone season in the country. Makira, Renbel and Temotu all have a very rainy climate. Crops grown during this season are still diverse. In addition, soils may be quicker to recover from salt intrusion as a result of frequent and heavy rains. Farmers are also familiar with the need to farm elsewhere while waiting 1-2 months for soil in coastal gardens to return to normal.

Food Sources: Communities in Makira and Malaita are familiar with accessing alternative food sources, such as wild foods from forests and bush areas when food is scarce, as a coping strategy. Due to the high prevalence of subsistence farmers, many communities only access basic goods from the market (flour, rice, noodles, sugar). If markets are damaged, the impact on communities is expected to be mitigated by the fact that they are used to growing most of their food.

Social protection: For the most vulnerable, all family members (older children and adults), churches and village chiefs can provide care and support. Communities have the regular practice of sharing the responsibility of caring for small children and other vulnerable individuals.

Traditional Dwellings: Although there are incoming reports of damage and destruction of traditional houses, these are built with light materials that are widely available at little or no cost. In addition, most people in communities already have the skills to rebuild these structures.

Small commerce: Small vendors may have limited access to markets at the present time. Coping strategies include trade and barter for basic goods, or sharing of goods within the community.



Logistics, Infrastructure & Markets

Domestic airport: There are three domestic airports in the province. The closest airport to the affected areas is Santa Ana. Another airport is found in Kirakira, the provincial capital, which is opposite the affected areas. This airport can accommodate DASH-8s and Twin Otters. All airports are functioning but the runways are not tar sealed. There is also no night flying services and refueling services are limited to regular flight schedules. On the other hand, the affected areas south of Malaita can be served by the Afutara airport.

Seaport: The affected areas in the island have no access to wharf but good anchorage exists. So large ships can anchor offshore but secondary use of small boats is required. The main means of transportation are outboard motors (OBM) and dug-out canoes. In the case of Malaita, there is a wharf in the southern part of the island which is Afio substation.

Transport corridors: Logging roads and bush tracks exist in the island which link the affected areas to the provincial center. Crossing the island through these paths will take about one day.

Market Capacity & Constraints: There is one market in the provincial center but there are also small markets in the communities around the island.

Communication: High frequency (HF) radio works in the whole island. However, mobile phone coverage exists only on certain locations.



Livelihood profile

Livelihoods: The main livelihood activities in the Makira Province are mostly subsistence farming and small livestock raising. Fishing is done for both home consumption and sales to market. Small businesses include homestay and canteens. Timber milling activities are also practiced in the area.

Agriculture: The major agricultural activities are associated with cocoa and coconut plantation and processing units. Trading of cocoa and copra is also a major activity.

Fishing: Fishing is done all year round. People engaged in it both for home consumption and sales to market. Among the main marine produce harvested all year round is the trochus shell. At the moment, fisherfolk may be hesitant to engage in ocean fishing by boat, either due to boat damage or residual fear of the tsunami. They are likely to turn to alternative fishing sources such as river fishing, reef and shore fishing in the meantime.

Seasonal calendar

Agricultural season: All year round (cash crop)

Cyclone season: November - April

Christmas festive season: November – January. During this period, students and those formally employed are coming home to their communities from provincial capitals and town centers to enjoy school break and to celebrate Christmas. The presence of more people in the villages makes the areas subject to higher vulnerability in case of disaster.



Food consumption

Typical diet: A typical meal is composed of banana, rootcrops (sweet potato, cassava, taro, yam and pana), vegetables (green leaves, slippery cabbage, pumpkin tops, fern), flour-based buns, coconuts and biscuits, seafoods (fish and shells), rice and noodles, canned foods (fish and meat) and coconut.

Nutrition Profile: National data on health and nutrition are available at the Ministry of Health and Medical Services (MHMS) while provincial level data are available at MHMS and the provincial health center in Kirakira.

? ASSUMPTIONS

Geographic impact: The impact zones were calculated using the Shakemap downloaded from the United States Geological Society (USGS) website. From the original 8 categories in the Shakemap, the impact zones were adjusted to three classes with 3 as the zone of highest impact.

The impact zones were not categorized into 4 classes (with 4 as the area of severest impact) as normally observed in past analysis since making four categories would show that no place in the island of Makira would have been directly hit by the earthquake.

Eventually, in consultation with the Committee members, the generated impact zones were further adjusted. Zone 3 was retained but Zone 2 was subdivided into two representing Zones 2 and 1.

Affected population: Population data were derived from the 2009 Census of the country. The census data was part of the datasets sourced from the PopGIS database. The affected population was computed using three food security and vulnerability indicators, namely type of housing materials, subsistence cultivation and source of drinking water. These indicators were selected from a total list of 11 indicators by a pool of provincial agriculture extension officers from the nine (9) provinces in the country.

Priority areas for food assistance/validation: Wards located in impact zone 3 were assumed to be heavily affected by the earthquake and were therefore categorized as priority areas for food assistance / field validation. Based on the initial assessment, there are three areas that should be given immediate attention, namely: Weather Coast, Arosi West and Haununu.

People in need of food assistance: The population in the priority areas who are subsistence farmers or do not grow food are assumed to be in need of food assistance.

Damaged / destroyed houses: Houses in the affected areas are assumed to have been impacted by the earthquake. Damage or destruction would be highest in Impact Zone 3 for houses made up of either makeshift materials or traditional style housing, particularly those that are raised above ground.

Market prices for key commodities: At the moment, there is no available price data for key commodities in the affected areas.



REFERENCES & LINKS

- Shakemap was sourced from the United States Geological Society (USGS) (<http://earthquake.usgs.gov/earthquakes/eventpage/us20007z80#shakemap>)
- Datasets used in the initial assessment were downloaded from PopGIS (<http://prism.spc.int/regional-data-and-tools/popgis2#!=en;v=map1>)



POINTS FOR VALIDATION

For the validation phase, it is recommended that the following be taken in to consideration:

- The Livelihood Committee is composed of other activities. At present, information about these activities are limited. As such, additional data is required from members to identify additional livelihood categories for support.
- The Census data contains numbers of people engaged in various activities such as subsistence farming and not growing. However, some amount of overlap exist among the numbers as some subsistence farmers are also engaged in subsistence fishing. Validation should include questions to specify the proportion of people engaged different activities and the degree of overlaps.



TRAVELLERS' INFORMATION

Characterized by high and rather uniform temperature and humidity and in most areas abundant rainfall in all months. Rainfall is the least uniform of these climatic elements due to topography.

Available but not in the whole in the area :

- Air conditioning/heating
- Electricity
- Mobile phone network



CONTACTS

For more information, contact:

LIVELIHOOD COMMITTEE

Michael Ho'ota, *Chairperson, Ministry of Agriculture & Livestock*

Sipuru Rove, *Risk Resilient and Development Officer*

MINISTRY OF AGRICULTURE & LIVESTOCK

Jimi Salea, *Permanent Secretary*

Michael Ho'ota, *Director*

REGIONAL FOOD SECURITY CLUSTER (FIJI)

Sandra Hart, *Regional Cluster Coordinator (WFP)*

Scott Higgins, *Regional Information Manager (WFP)*

Philippe Martins, *Regional Cluster Coordinator (FAO)*

WFP REGIONAL VAM TEAM

Siemon Hollema, *Senior Regional Programme Officer (VAM)*

Amy Chong, *Regional GIS Officer*

Yingci Sun, *Regional VAM Officer*

Juanito G. Berja Jr., *National VAM Officer (Philippines)*

Elenoa Diani, *VAM-GIS Officer (Fiji)*

STATISTICAL PROFILE

Code	Ward	GEOIMPACT	GrowSubsistenceRank	WaterAccessRank	HousingVulnerabilityRank	PRIORITY RANKING	Score	Farmsubsistenceonly	GrowSubsistenceRank 1	Fishsubsistenceonly
819.0	Weather Coast	3.0	4.0	4.0	4.0	1	12.0	283.0	4.0	232.0
806.0	Arosi West	3.0	3.0	4.0	4.0	1	11.0	205.0	3.0	207.0
820.0	Haununu	3.0	3.0	4.0	3.0	1	10.0	243.0	3.0	277.0
804.0	Ugi And Pio	2.0	4.0	4.0	4.0	2	8.0	151.0	4.0	172.0
818.0	Rawo	2.0	4.0	4.0	4.0	2	8.0	76.0	4.0	79.0
808.0	Arosi East	2.0	4.0	4.0	3.0	2	7.3	241.0	4.0	200.0
807.0	Arosi North	2.0	2.0	4.0	4.0	2	6.7	174.0	2.0	202.0
809.0	Bauro West	2.0	2.0	4.0	3.0	2	6.0	303.0	2.0	346.0
810.0	Bauro Central	2.0	3.0	3.0	3.0	2	6.0	353.0	3.0	325.0
811.0	Bauro East	2.0	3.0	4.0	2.0	2	6.0	136.0	3.0	201.0
805.0	Arosi South	2.0	1.0	4.0	3.0	2	5.3	161.0	1.0	185.0

STATISTICAL PROFILE

611.0	Tetekanji	1.0	4.0	4.0	4.0	3	4.0	170.0	4.0	128.0
610.0	Moli	1.0	3.0	4.0	4.0	3	3.7	470.0	3.0	310.0
614.0	Kolokarako	1.0	3.0	4.0	4.0	3	3.7	136.0	3.0	139.0
802.0	South Ulawa	1.0	4.0	4.0	3.0	3	3.7	165.0	4.0	108.0
612.0	Birao	1.0	3.0	3.0	4.0	3	3.3	298.0	3.0	236.0
613.0	Valasi	1.0	2.0	4.0	4.0	3	3.3	118.0	2.0	110.0
803.0	West Ulawa	1.0	3.0	4.0	3.0	3	3.3	117.0	3.0	91.0
813.0	Wainoni East	1.0	2.0	4.0	4.0	3	3.3	168.0	2.0	228.0
722.0	Aba - Asimeuru	1.0	2.0	4.0	3.0	3	3.0	347.0	2.0	305.0
723.0	Asimae	1.0	2.0	4.0	3.0	3	3.0	225.0	2.0	223.0
801.0	North Ulawa	1.0	2.0	4.0	3.0	3	3.0	89.0	2.0	106.0
817.0	Star Harbour South	1.0	1.0	4.0	4.0	3	3.0	53.0	1.0	74.0
720.0	Areare	1.0	1.0	4.0	3.0	3	2.7	107.0	1.0	104.0
721.0	Raroisuu	1.0	1.0	4.0	3.0	3	2.7	219.0	1.0	225.0
724.0	Mareho	1.0	1.0	4.0	3.0	3	2.7	135.0	1.0	155.0
812.0	Wainoni West	1.0	1.0	3.0	4.0	3	2.7	95.0	1.0	124.0
814.0	Star Harbour North	1.0	1.0	3.0	4.0	3	2.7	127.0	1.0	174.0
815.0	Santa Ana	1.0	2.0	3.0	3.0	3	2.7	123.0	2.0	137.0
615.0	Longgu	1.0	1.0	3.0	3.0	3	2.3	100.0	1.0	125.0
616.0	Aola	1.0	2.0	2.0	3.0	3	2.3	294.0	2.0	359.0
617.0	Paripao	1.0	2.0	3.0	2.0	3	2.3	238.0	2.0	393.0
816.0	Santa Catalina	1.0	2.0	1.0	4.0	3	2.3	72.0	2.0	61.0
1004.0	Cruz	1.0	4.0	1.0	1.0	3	2.0	12.0	4.0	2.0
501.0	East Te Nggano	1.0	4.0	1.0	1.0	3	2.0	62.0	4.0	49.0
502.0	West Te Nggano	1.0	4.0	1.0	1.0	3	2.0	55.0	4.0	52.0
503.0	Lughu	1.0	4.0	1.0	1.0	3	2.0	57.0	4.0	30.0
504.0	Kangava	1.0	4.0	1.0	1.0	3	2.0	41.0	4.0	38.0
505.0	Tetau Nangoto	1.0	4.0	1.0	1.0	3	2.0	107.0	4.0	63.0
506.0	Mugihenua	1.0	4.0	1.0	1.0	3	2.0	21.0	4.0	17.0
507.0	Matangi	1.0	3.0	1.0	1.0	3	1.7	17.0	3.0	18.0
508.0	East Ghongau	1.0	3.0	1.0	1.0	3	1.7	34.0	3.0	22.0
509.0	West Ghongau	1.0	3.0	1.0	1.0	3	1.7	42.0	3.0	23.0
618.0	East Tasimboko	1.0	1.0	2.0	2.0	3	1.7	321.0	1.0	592.0
622.0	East Ghaobata	1.0	1.0	2.0	2.0	3	1.7	155.0	1.0	247.0
1001.0	Nggosi	1.0	2.0	1.0	1.0	3	1.3	602.0	2.0	182.0
1002.0	Mbumburu	1.0	2.0	1.0	1.0	3	1.3	224.0	2.0	22.0
1003.0	Rove - Lengakiki	1.0	2.0	1.0	1.0	3	1.3	141.0	2.0	49.0
621.0	West Ghaobata	1.0	1.0	1.0	2.0	3	1.3	276.0	1.0	285.0
1005.0	Vavaea	1.0	1.0	1.0	1.0	3	1.0	226.0	1.0	40.0
1006.0	Vuhokesa	1.0	1.0	1.0	1.0	3	1.0	37.0	1.0	29.0
1007.0	Mataniko	1.0	1.0	1.0	1.0	3	1.0	174.0	1.0	17.0
1008.0	Kola'A	1.0	1.0	1.0	1.0	3	1.0	507.0	1.0	39.0
1009.0	Kukum	1.0	1.0	1.0	1.0	3	1.0	64.0	1.0	13.0