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Safer world.**



Guatemala Department Profiles

**National Disaster Preparedness Baseline Assessment
Subnational Assessment Results**

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Guatemala: Alta Verapaz

**National Disaster Preparedness Baseline Assessment –
Department Profile**

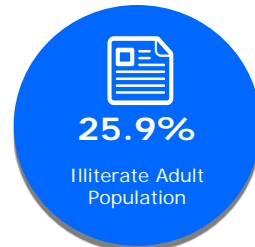
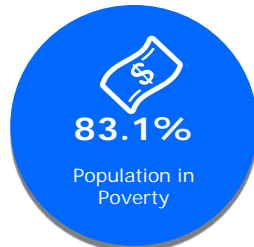
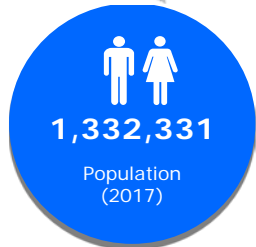
Department: Alta Verapaz



Department Capital: Cobán

Area: 8,686 km²

Alta Verapaz is located in north central Guatemala, just south of Petén. The department is one of the main palm oil export areas in the country and Central America. Alta Verapaz has the highest poverty rate in the country.



Municipality

Municipality	Population
Cobán	279,372
San Pedro Carchá	257,136
Chisec	77,656
Fray Bartolomé de las Casas	73,879
Senahú	72,268
San Cristóbal Verapaz	68,867
Cahabon	67,745
San Juan Chamelco	67,223
Panzós	66,041
Santa Cruz Verapaz	47,808
Tucurú	47,705
La Tinta	44,089
Tactic	40,235
Raxruhá	38,735
Chahal	31,107
Lanquín	28,587
Tamahú	23,877



Multi-Hazard Risk Rank: Very High (4 of 22)

Lack of Resilience Rank: Very High (1 of 22)

RVA Component Scores

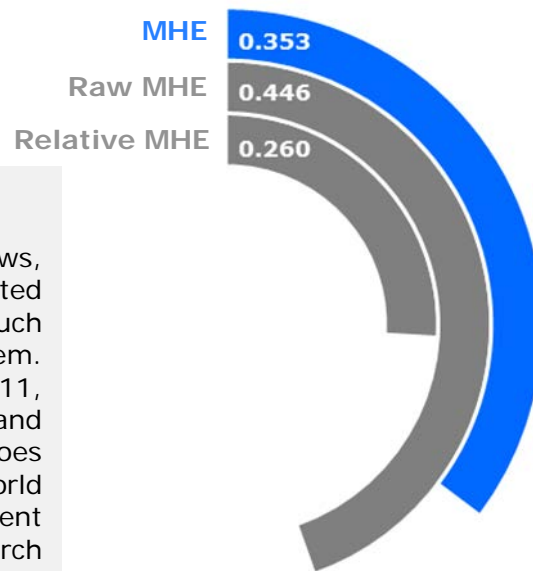
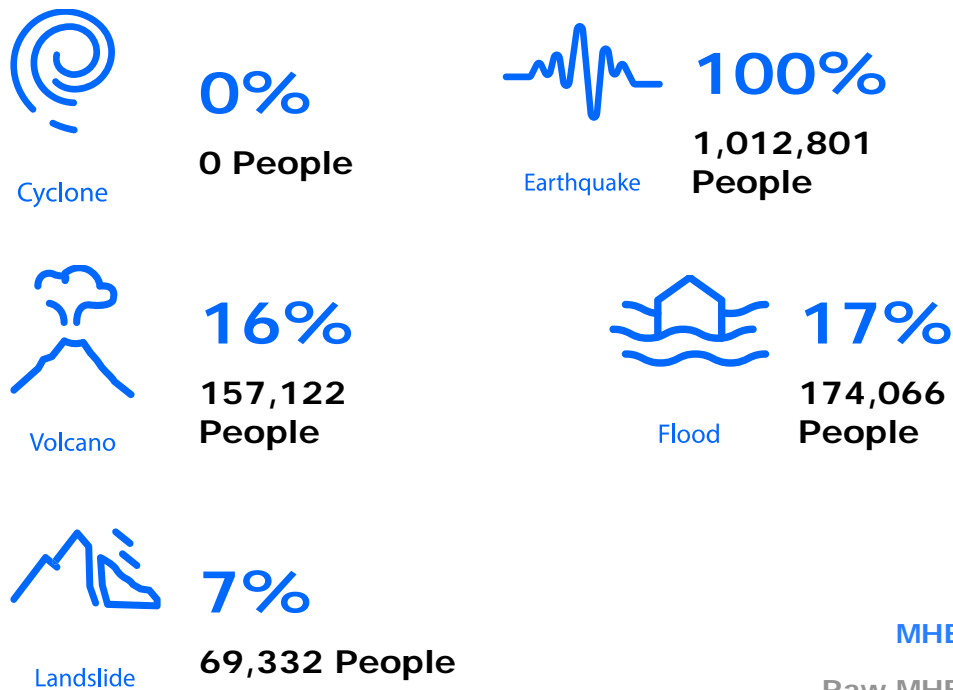
Table 24. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very High		Very High		Low		Very High		Very Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.583	4	0.698	1	0.353	18	0.707	1	0.311	21

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 18 of 22 Departments (Score: 0.353)

Table 15. Estimated ambient population² exposed to each hazard



Gender Inequality

“Despite existing relevant international and national laws, discrimination against women is a common, deep-rooted issue especially in poor, rural, indigenous communities such as Alta Verapaz with a heavy-handed patriarchal system. Femicide is the most extreme, yet continual, result. In 2011, 20,389 cases of physical, sexual, psychological, and economical violence and femicide were reported; this does not include the many cases that are not reported. World Renew trained 150 participants from five different communities. These participants are respected church members from impacted communities of gender injustice. Training and activities include: Developing a process of sensitization around gender equality; Awareness and training of men and women about the issues of gender rights; Educating leaders and local authorities.”

<https://worldrenew.net/what-we-do/projects/gender-justice-guatemala>

¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 1 of 22 Departments (Score: 0.707) Vulnerability in Alta Verapaz is primarily driven by Clean Water Vulnerability, Population Pressures, Gender Inequality and Information Access Vulnerability. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

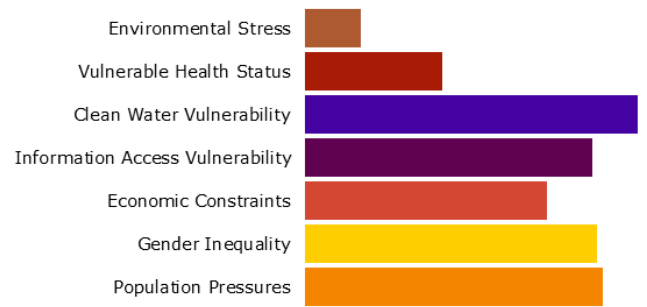









Table 26. Component scores for each Vulnerability sub-component

	Environmental Stress	0.4% Province at Drought Risk	0.2% Annual Forest Change					
	Vulnerable Health Status	29 Infant Mortality Rate	186.0 Maternal Mortality Ratio	0.7% Acute Malnutrition	1.0% Population Disabled	8.3 TB Incidence	4.3 Dengue Prevalence	6.4 Malaria Prevalence
	Clean Water Vulnerability	44.1% Households with Access to Improved Water	21.4% Households with Access to Improved Sanitation					
	Information Access Vulnerability	25.9% Adult Illiteracy	4.0 Average Years of Schooling	77.9% Primary School Enrollment	2.0% Households with Internet	14.1% Households with Cable TV	70.8% Households with Radio	89.7% Speak Indigenous Language
	Economic Constraints	0.91 Economic Dependency Ratio	83.1% Population in Poverty	0.50 GINI Coefficient				
	Gender Inequality	11.1% Female Seats in Congress	0.26 Ratio of Female to Male Secondary Education Enrollment	0.31 Ratio of Female to Male Economic Activity				
	Population Pressures	0.4% Province at Drought Risk	0.2% Annual Forest Change					

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 21 of 22 Departments (Score: 0.311) Alta Verapaz displays a very low level of Coping Capacity, which is attributable to very low Economic Capacity and Infrastructure Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

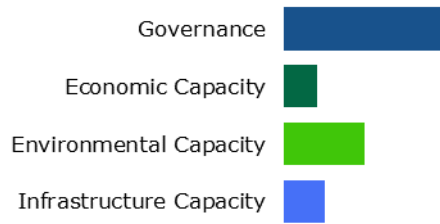









Table 2. Component scores for each Coping Capacity sub-component

	Governance	122.2 Crime Victims per 100K	7.3% Households with Garbage Collection			
	Economic Capacity	\$306.0 Remittances per Capita (USD)	6.04 Businesses per 1,000 persons	6,255 GDP per Capita (Quetzales)		
	Environmental Capacity	6.4% Protected Land	1.6% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	13.9 Hospital Beds per 10,000 Persons	1.3 Nurses per 10,000 Persons	1.5 Physicians per 10,000 Persons	27.4 km Average Distance to Nearest Hospital	86.9% Children Completed Immunization Schedule
	Communications Capacity	3.14% Households with Access to Fixed Phone Line	81.6% Households with Access to Mobile Phone	44.1% Households with Access to Electricity		
	Transportation Capacity	23.6 km Average Distance to Nearest Port or Airport	9.1 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 1 of 22 Departments (Score: 0.698)

Alta Verpaz's score and ranking are due to very high Vulnerability combined with very low Coping Capacity scores.

Table 283. The 3 thematic areas with the weakest relative scores



Infrastructure Capacity



Economic Capacity



Clean Water Vulnerability

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 4 of 22 Departments (Score: 0.583)

Alta Verpaz's score and ranking are due to very high Vulnerability, low Multi-Hazard Exposure combined with very low Coping Capacity scores.

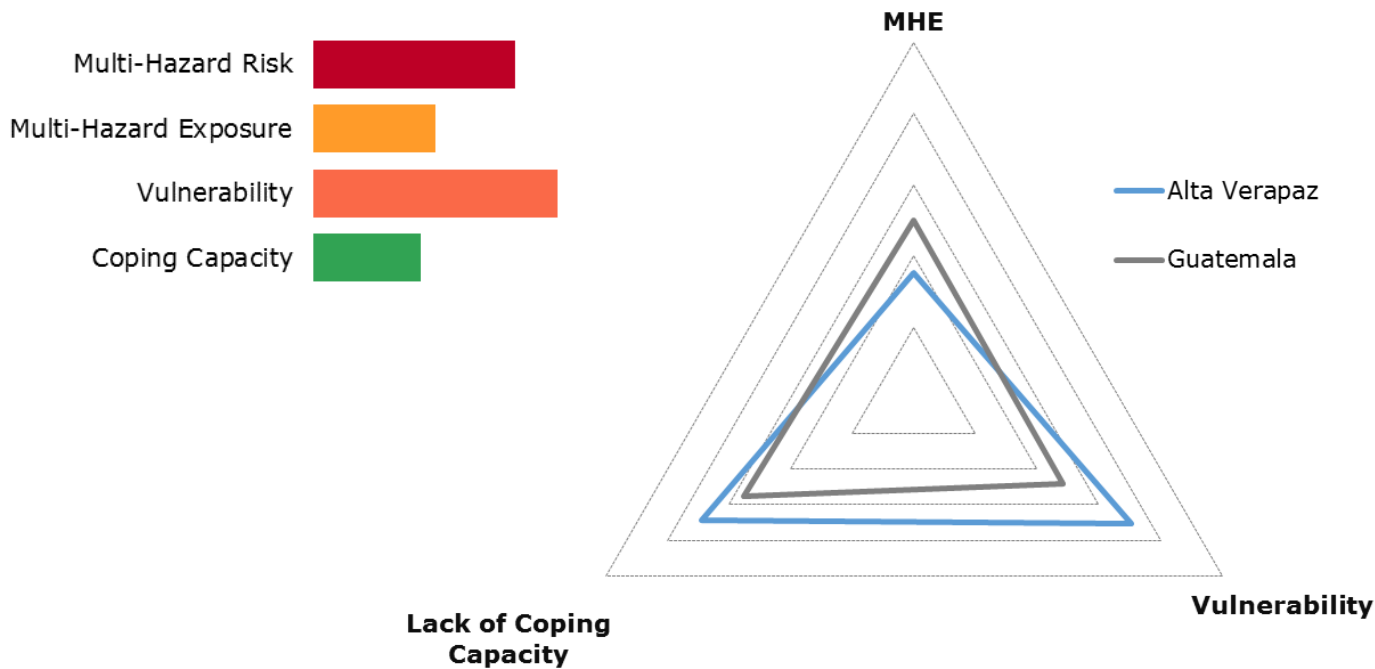


Figure 1. Department Multi-Hazard Risk Component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest environmental stress

Ranked 22 of 22 departments, low environmental stress indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.



High overall governance

Ranked 3 of 22 departments, high governance could facilitate the implementation of disaster management initiatives into departmental and municipal communities.

Recommendations

01

Invest in infrastructure

Invest in Health Care, Transportation and Communication Infrastructures to increase coping capacity and resiliency within the department.

02

Increase water and sanitation services

Invest in public water and waste facilities to increase water quality and access and reduce the spread of disease.

03

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve the resilience of women during disasters.



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Image: Rolando



Guatemala: Baja Verapaz

**National Disaster Preparedness Baseline Assessment –
Department Profile**

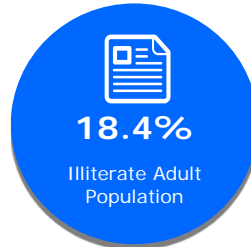
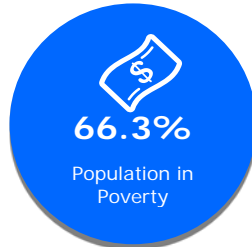
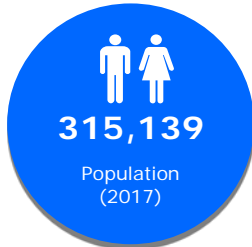
Department: Baja Verapaz



Department Capital: Salamá

Area: 3,124 km²

Baja Verapaz is in central Guatemala to the north of Guatemala City. The region is dominated by the Chuacús Mountains and the economy is based on sugar cane, vegetables and grain production.



Municipality	Population
Cubulco	73,445
Purulhá	62,020
Salamá	61,882
Rabinal	39,386
San Miguel Chicaj	31,190
San Jerónimo	25,932
Granados	11,574
El Chol	9,710



**Multi-Hazard Risk Rank:
Low (17 of 22)**

**Lack of Resilience Rank:
Low (15 of 22)**

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Low		Low		Low		Moderate		High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.469	17	0.497	15	0.413	15	0.500	9	0.507	7

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 15 of 22 Departments (Score: 0.413)

Table 2. Estimated ambient population² exposed to each hazard



11%

31,853 People

Cyclone



100%

283,423 People

Earthquake



96%

272,953 People

Volcano



10%

28,128 People

Flood



11%

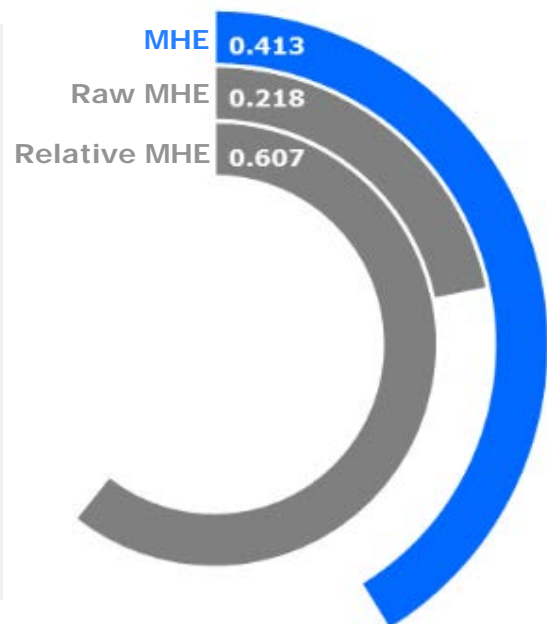
31,296 People

Landslide

The Quetzal Biotope (a.k.a. Mario Dary Rivera Nature Reserve)

The Quetzal Biotope, officially known as the Mario Dary Rivera Nature Reserve, is one of the most fascinating nature reserves in Guatemala, protecting 3,000 acres of cloud forest and many species of flowers, butterflies, and birds, including the national bird, the quetzal. Established in 1977 to protect Guatemala's rapidly shrinking cloud forest and its inhabitants, the nature reserve has been under the administration of the San Carlos University, which has made the Quetzal Biotope one of the country's top destinations for nature lovers and bird watchers.

<http://www.sailing-diving-guatemala.com/guatemala/quetzal-biotope.php>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 9 of 22 Departments (Score: 0.500) Vulnerability in Baja Verapaz is primarily driven by Information Access Vulnerability and Gender Inequality. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

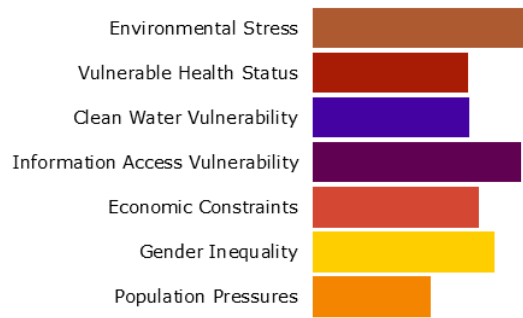









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	70.5% Province at Drought Risk	-1.5% Annual Forest Change					
	Vulnerable Health Status	22 Infant Mortality Rate	137.9 Maternal Mortality Ratio	0.6% Acute Malnutrition	7.6% Population Disabled	7.5 TB Incidence	4.1 Dengue Prevalence	26.3 Malaria Prevalence
	Clean Water Vulnerability	82.9% Households with Access to Improved Water	45.8% Households with Access to Improved Sanitation					
	Information Access Vulnerability	18.4% Adult Illiteracy	5.0 Average Years of Schooling	79.5% Primary School Enrollment	2.9% Households with Internet	36.9% Households with Cable TV	78.4% Households with Radio	55.8% Speak Indigenous Language
	Economic Constraints	0.90 Economic Dependency Ratio	66.3% Population in Poverty	0.42 GINI Coefficient				
	Gender Inequality	50.0% Female Seats in Congress	0.15 Ratio of Female to Male Secondary Education Enrollment	0.22 Ratio of Female to Male Economic Activity				
	Population Pressures	2.9% Average Annual Population Change	1.8% Average Annual Urban Population Change	40.3% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 7 of 22 Departments (Score: 0.507) Baja Verapaz displays a low level of Coping Capacity, which is attributable to low Governance and low Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

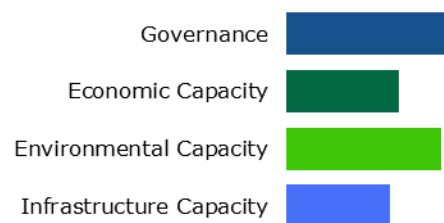


Table 4. Component scores for each Coping Capacity sub-component

	Governance	164.4 Crime Victims per 100K	7.1% Households with Garbage Collection				
	Economic Capacity	\$872.3 Remittances per Capita (USD)	8.3 Businesses per 1,000 persons	7,174 GDP per Capita (Quetzales)			
	Environmental Capacity	14.4% Protected Land	3.5% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	7.0 Hospital Beds per 10,000 Persons	2.1 Nurses per 10,000 Persons	2.1 Physicians per 10,000 Persons	18.6 km Average Distance to Nearest Hospital	87.7% Children Completed Immunization Schedule	
	Communications Capacity	1.7% Households with Access to Fixed Phone Line	82.6% Households with Access to Mobile Phone	82.3% Households with Access to Electricity			
	Transportation Capacity	37.7 km Average Distance to Nearest Port or Airport	24.8 km Total Length of Road per 100 km ² (area)				

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 15 of 22 Departments (Score: 0.497)

Baja Verapaz's score and ranking are due to moderate Vulnerability combined with high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Information Access Vulnerability



Governance

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 17 of 22 Departments (Score: 0.469)

Baja Verapaz's score and ranking are due to low Multi-Hazard Exposure combined with moderate Vulnerability and high Coping Capacity scores.

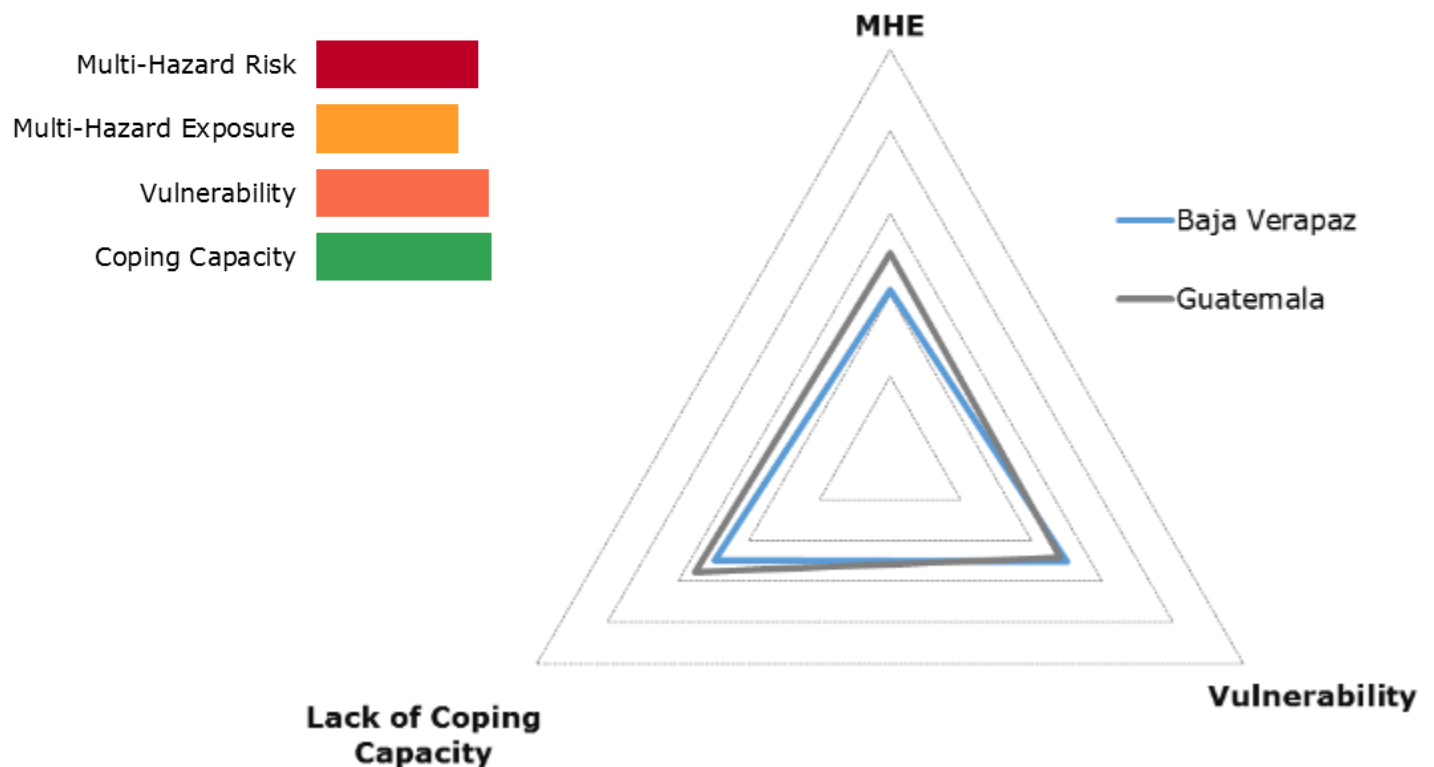


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



High overall governance

Ranked 2 of 22 departments, high governance could facilitate the implementation of disaster management initiatives into departmental and municipal communities.



High environmental capacity

Ranked 3 of 22 departments, high environmental capacity indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.



Low economic constraints

Ranked 15 of 22 departments, low economic constraints indicate an increased ability to invest in mitigation and preparedness measures at the individual, household, and department level.

Recommendations

01

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve resilience and decrease vulnerability.

02

Increase information accessibility

Increase access to information for the population through investments in infrastructure and education. By increasing citizen access to information, disaster managers can provide disaster-related information to a greater percentage of the population.

03

Increase government services

Investments in public services such as garbage collection, fire, and police will increase coping capacity and the department's ability to handle crises.

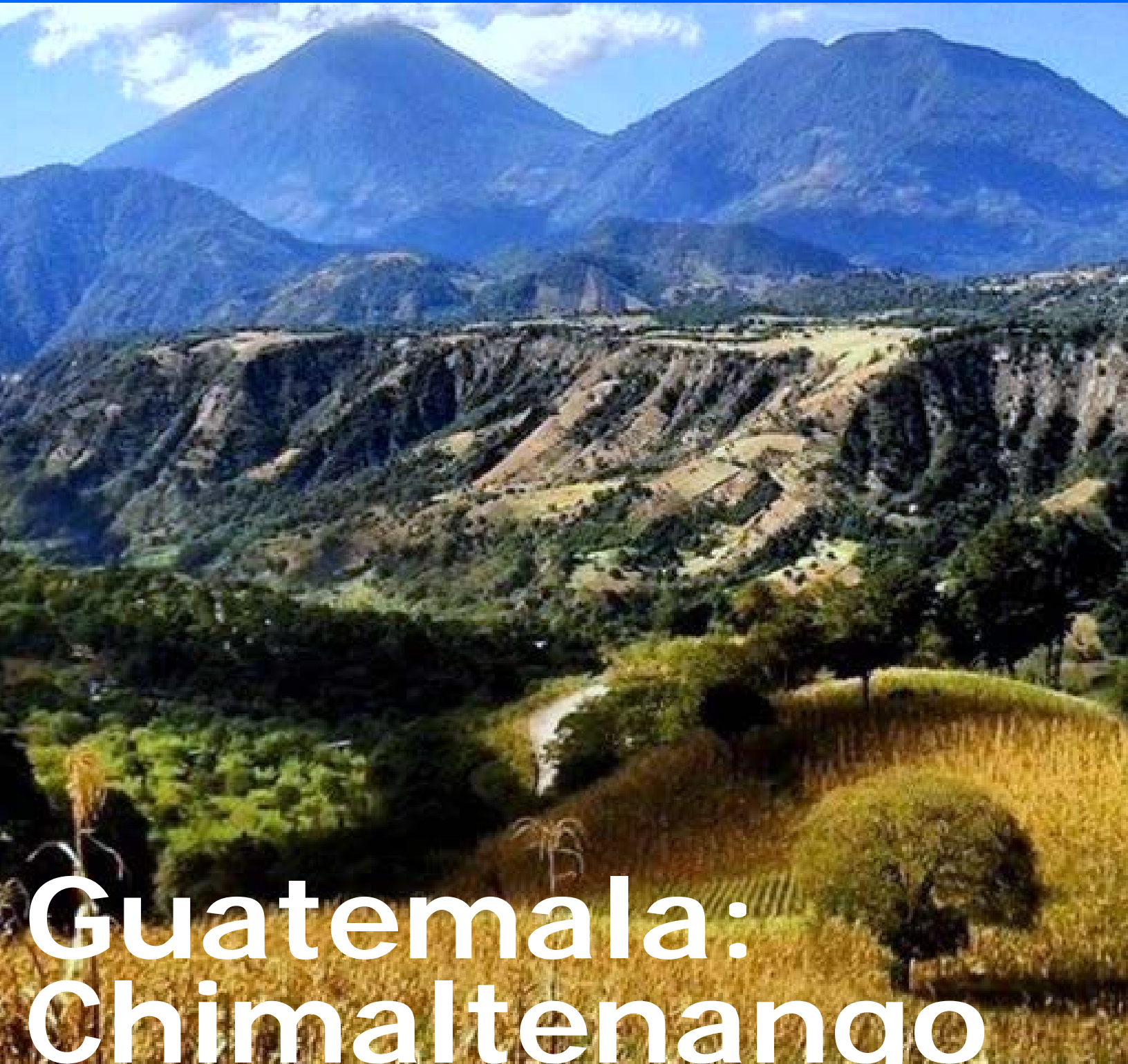


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Guatemala: Chimaltenango

**National Disaster Preparedness Baseline Assessment –
Department Profile**

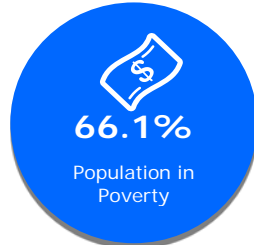
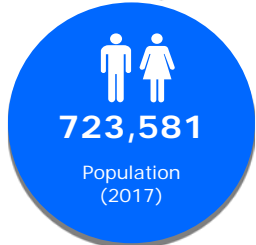
Department: Chimaltenango



Department Capital: Chimaltenango

Area: 1,979 km²

Chimaltenango is located in central Guatemala, immediately to the west of the departments of Sacatepéquez and Guatemala. The municipality of Tecpán in Chimaltenango is called the 'first capital of Guatemala,' as the first permanent Spanish colonial military center of the nation.



Municipality

Municipality	Population
Chimaltenango	152,919
Tecpán Guatemala	98,856
San Martín Jilotepeque	83,956
Patzún	58,106
Comalapa	47,104
Patzicía	39,645
San Andrés Itzapa	38,686
Yepocapa	36,126
El Tejar	30,176
Zaragoza	28,959
San José Poaquil	26,244
Acatenango	24,310
Parramos	19,323
Santa Apolonia	18,487
Pochuta	12,055
Santa Cruz Balanyá	8,627

Population



**Multi-Hazard Risk Rank:
Very High (3 of 22)**

**Lack of Resilience Rank:
Very Low (11 of 22)**

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very High		Moderate		Very High		Moderate		Moderate	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.586	3	0.518	11	0.722	2	0.441	13	0.405	14

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 2 of 22 Departments (Score: 0.722)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

580,970 People



Earthquake

100%

580,970 People



Volcano

100%

580,970 People



Flood

1%

3,004 People



Landslide

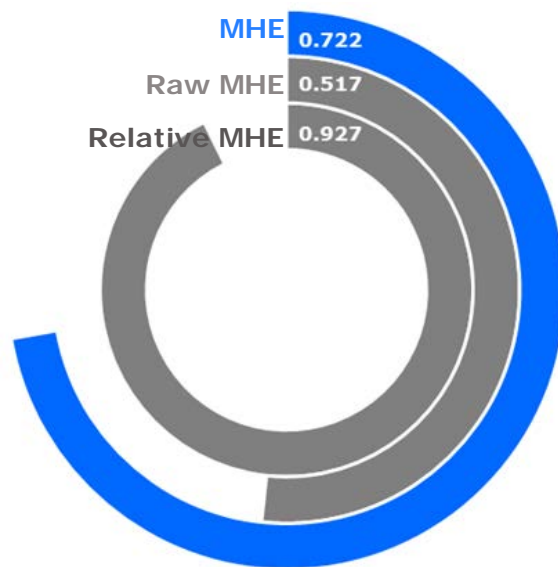
10%

56,867 People

Pounds of Prevention

“After hurricanes Stan in 2005 and Mitch in 1998, USAID and its partners began a program to train staff to serve as liaisons to government officials, oversee risk-reduction projects, manage emergency shelters, coordinate with local police and fire departments, and plug into the wider national emergency-response system to ensure the effectiveness of all related investments. The municipal risk-management office coordinates the activities of 27 local disaster-management committees, one in each participating village in Tecpán. This knowledge and training helped save lives in May 2010 when Tropical Storm Agatha’s rains caused a landslide in the village of Giralda. Fortunately, no fatalities occurred because one active program participant heeded warning signs and evacuated his neighbors away from the steep slopes of the village in advance of the storm.”

USAID: *Pounds of Prevention – A Disaster Risk Reduction Story*



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 13 of 22 Departments (Score: 0.441) Vulnerability in Chimaltenango is primarily driven by Information Access Vulnerability and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

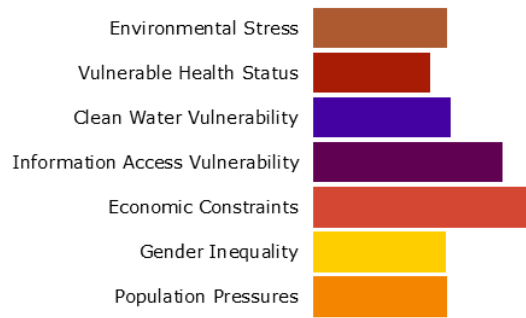









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	47.2% Province at Drought Risk	.41% Annual Forest Change					
	Vulnerable Health Status	38 Infant Mortality Rate	94.1 Maternal Mortality Ratio	0.4% Acute Malnutrition	1.9% Population Disabled	3.0 TB Incidence	3.6 Dengue Prevalence	11.6 Malaria Prevalence
	Clean Water Vulnerability	78.4% Households with Access to Improved Water	59.2% Households with Access to Improved Sanitation					
	Information Access Vulnerability	10.3% Adult Illiteracy	5.7 Average Years of Schooling	72.3% Primary School Enrollment	5.7% Households with Internet	32.0% Households with Cable TV	87.0% Households with Radio	78.4% Speak Indigenous Language
	Economic Constraints	0.91 Economic Dependency Ratio	66.1% Population in Poverty	0.51 GINI Coefficient				
	Gender Inequality	20.0% Female Seats in Congress	0.06 Ratio of Female to Male Secondary Education Enrollment	0.10 Ratio of Female to Male Economic Activity				
	Population Pressures	4.1% Average Annual Population Change	2.2% Average Annual Urban Population Change	33.2% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 14 of 22 Departments (Score: 0.405) Chimaltenango displays a medium level of Coping Capacity, which is attributable to low Economic Capacity and Healthcare Infrastructure. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

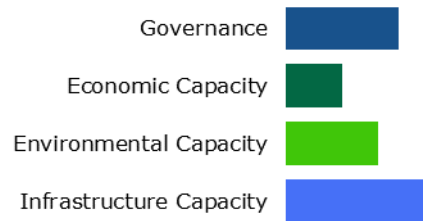


Table 4. Component scores for each Coping Capacity sub-component

	Governance	165.1 Crime Victims per 100K	17.0% Households with Garbage Collection			
	Economic Capacity	\$210.9 Remittances per Capita (USD)	11.2 Businesses per 1,000 persons	8,949.8 GDP per Capita (Quetzales)		
	Environmental Capacity	10.6% Protected Land	1.4% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	2.6 Hospital Beds per 10,000 Persons	1.8 Nurses per 10,000 Persons	2.3 Physicians per 10,000 Persons	13.5 km Average Distance to Nearest Hospital	90.2% Children Completed Immunization Schedule
	Communications Capacity	7.1% Households with Access to Fixed Phone Line	81.3% Households with Access to Mobile Phone	98.5% Households with Access to Electricity		
	Transportation Capacity	32.0 km Average Distance to Nearest Port or Airport	52.4 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 11 of 22 Departments (Score: 0.518)

Chimaltenango's score and ranking are due to moderate Vulnerability and Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Health Care Capacity



Economic Capacity



Economic Constraints

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 3 of 22 Departments (Score: 0.586)

Chimaltenango's score and ranking are due to very high Multi-Hazard Exposure combined with moderate Vulnerability and Coping Capacity scores.

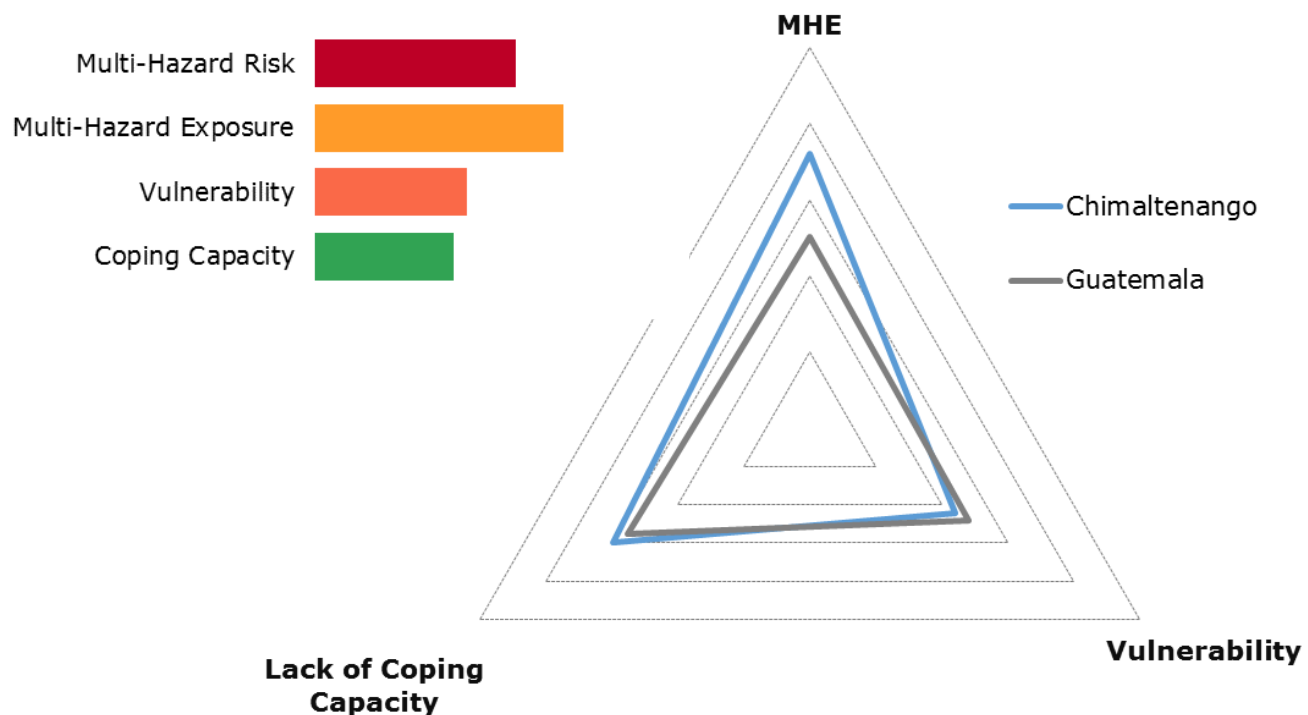


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low vulnerable health status

Ranked 20 of 22 departments, low health vulnerability indicates a population that will be more resilient to the negative health impacts associated with major disaster events.



Low gender inequality

Ranked 18 of 22 departments, low gender inequality indicates that vulnerable populations are more likely to have their needs met under 'normal' conditions and may be less susceptible during times of disaster.



High transportation capacity

Ranked 1 of 22 departments, well developed transportation networks facilitate the movement of goods and services, decreasing wait times for response and relief supplies.

Recommendations

01

Increase economic capacity

Encourage business development and education programs to increase economic opportunities in the region.

02

Increase health care availability

Increase clinics and medical personnel through incentivized programs and investments to increase the health resilience of the population.



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Guatemala: Chiquimula

**National Disaster Preparedness Baseline Assessment –
Department Profile**

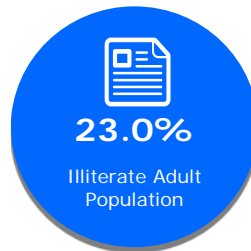
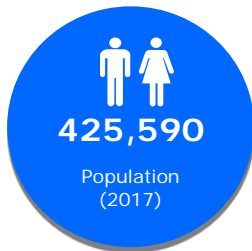
Department: Chiquimula



Department Capital: Chiquimula

Area: 2,376 km²

Chiquimula is in southeastern Guatemala in the highlands of the Sierra Madre mountain range, and borders Honduras to the southeast. The landscape is comprised of steep mountains, deep ravines, valleys, and wide plains. The region is also known for its maritime and palm-wood crafts sold throughout the country and internationally.



Municipality

Municipality	Population
Chiquimula	104,525
Jocotán	67,355
Esquipulas	64,835
Camotán	61,038
Quezaltepeque	28,437
Olopa	28,268
Ipala	20,454
San Juan Ermita	14,442
Concepción Las Minas	13,912
San Jacinto	13,550
San José La Arada	8,772



**Multi-Hazard Risk Rank:
Very Low (19 of 22)**

**Lack of Resilience Rank:
High (8 of 22)**

RVA Component Scores

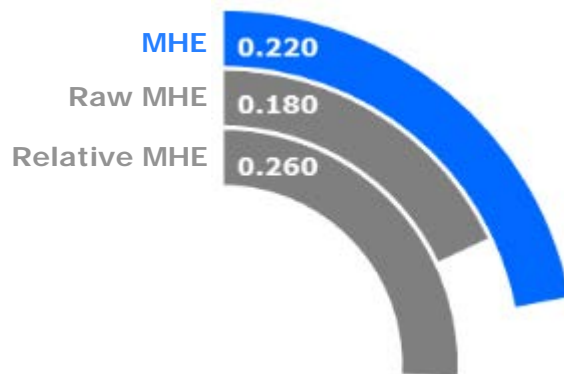
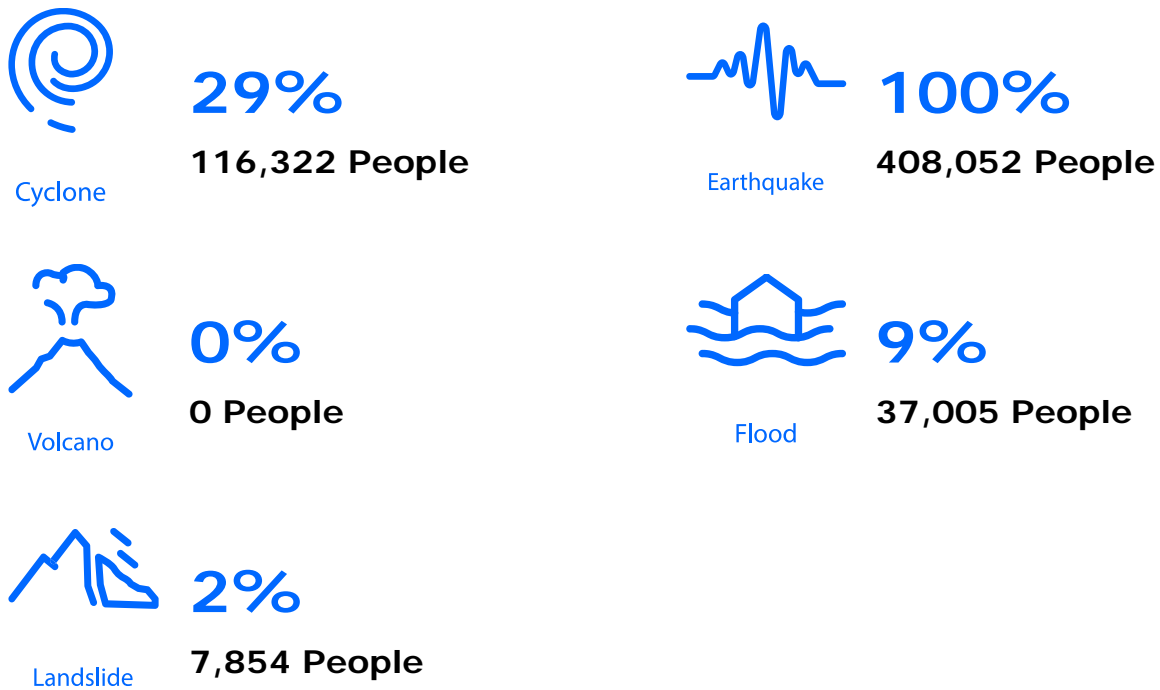
Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very Low		High		Very Low		High		High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.447	19	0.561	8	0.220	20	0.579	5	0.457	8

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 20 of 22 Departments (Score: 0.220)

Table 2. Estimated ambient population² exposed to each hazard



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 5 of 22 Departments (Score: 0.579) Vulnerability in Chiquimula is primarily driven by Gender Inequality and Environmental Stress. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

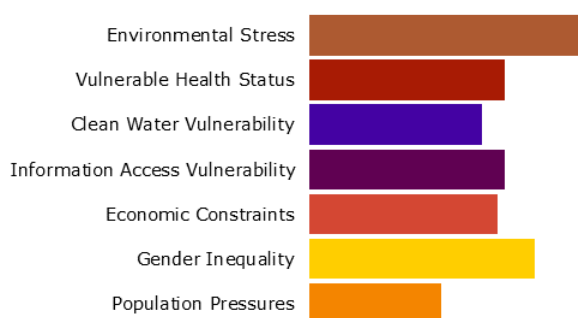









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	61.2% Province at Drought Risk	-4.7% Annual Forest Change					
	Vulnerable Health Status	51 Infant Mortality Rate	118.1 Maternal Mortality Ratio	0.4% Acute Malnutrition	1.9% Population Disabled	12.1 TB Incidence	13.6 Dengue Prevalence	19.2 Malaria Prevalence
	Clean Water Vulnerability	73.2% Households with Access to Improved Water	51.7% Households with Access to Improved Sanitation					
	Information Access Vulnerability	23.0% Adult Illiteracy	4.1 Average Years of Schooling	84.4% Primary School Enrollment	4.6% Households with Internet	28.3% Households with Cable TV	75.1% Households with Radio	7.1% Speak Indigenous Language
	Economic Constraints	0.88 Economic Dependency Ratio	70.6% Population in Poverty	0.45 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.07 Ratio of Female to Male Secondary Education Enrollment	0.21 Ratio of Female to Male Economic Activity				
	Population Pressures	2.6% Average Annual Population Change	1.7% Average Annual Urban Population Change	47.0% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 8 of 22 Departments (Score: 0.457) Chiquimula displays a low level of Coping Capacity, which is attributable to low Infrastructure Capacity and low Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department’s overall Coping Capacity score.

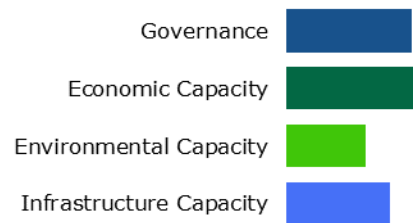









Table 4. Component scores for each Coping Capacity sub-component

	Governance	291.0 Crime Victims per 100K	16.0% Households with Garbage Collection			
	Economic Capacity	\$707.8 Remittances per Capita (USD)	15.86 Businesses per 1,000 persons	9,848 GDP per Capita (Quetzales)		
	Environmental Capacity	9.7% Protected Land	1.0% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	12.2 Hospital Beds per 10,000 Persons	2.2 Nurses per 10,000 Persons	3.0 Physicians per 10,000 Persons	23.8 km Average Distance to Nearest Hospital	93.8% Children Completed Immunization Schedule
	Communications Capacity	6.3% Households with Access to Fixed Phone Line	76.4% Households with Access to Mobile Phone	88.8% Households with Access to Electricity		
	Transportation Capacity	17.3 km Average Distance to Nearest Port or Airport	27.5 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 8 of 22 Departments (Score: 0.561)

Chiquimula's score and ranking are due to high Vulnerability combined high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Environmental Stress



Infrastructure Capacity

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 19 of 22 Departments (Score: 0.447)

Chiquimula's very low Multi-Hazard Risk is attributable to high Coping Capacity, high Vulnerability, and very low Multi-Hazard Exposure.

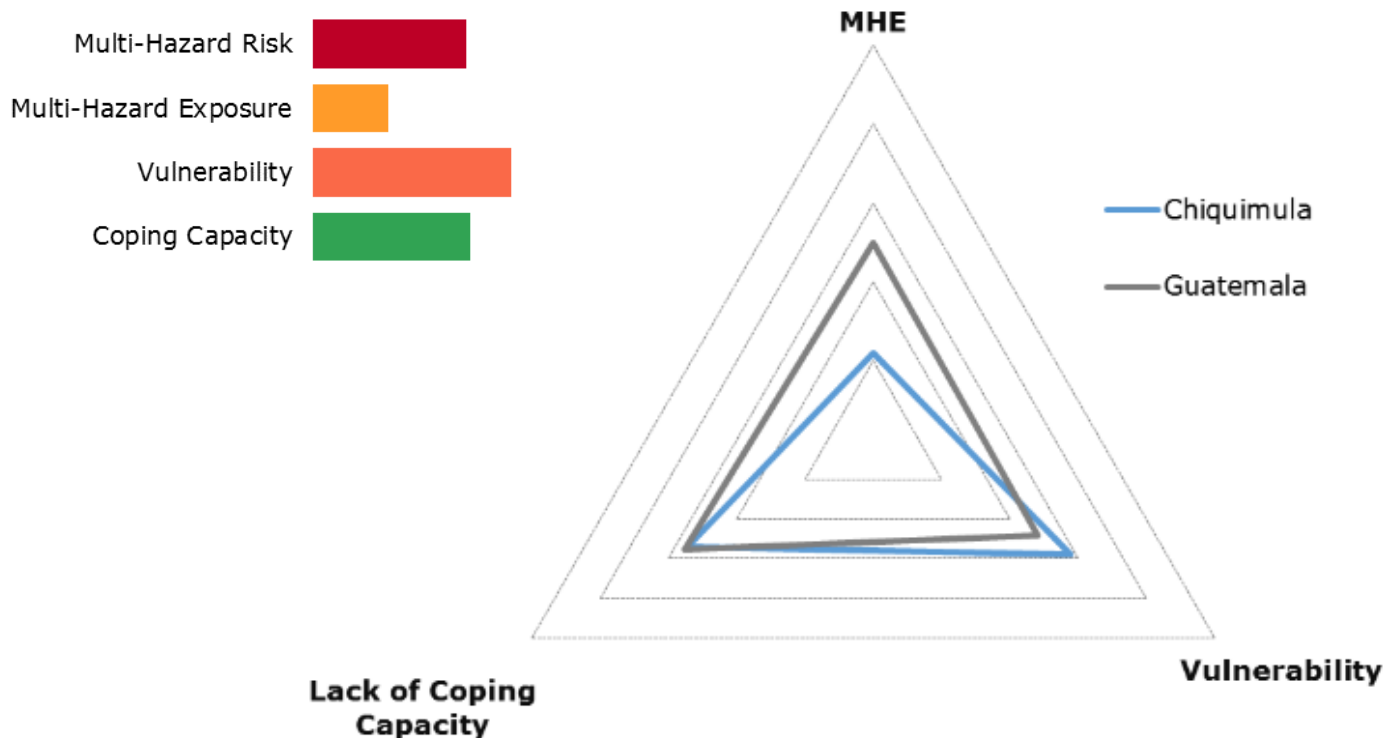


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



High economic capacity

Ranked 8 of 22 departments, high environmental capacity indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.

Recommendations

01

Invest in transportation infrastructure

Investing in transportation infrastructure will facilitate the distribution of goods and services before, during, and after a disaster event.

02

Promote environmental programs

Invest in environmental protection programs to preserve land and vegetation, increasing resiliency and coping capacity.

03

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve resilience and decrease vulnerability.



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Guatemala: El Progreso

**National Disaster Preparedness Baseline Assessment –
Department Profile**

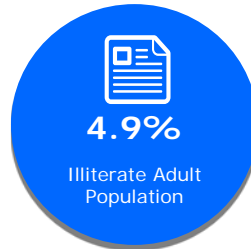
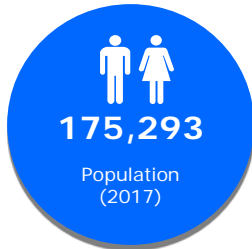
Department: El Progreso



Department Capital: Guastatoya

Area: 1,922 km²

El Progreso is in eastern Guatemala, and lies between the hot lowlands and cooler Guatemalan Highlands. Approximately 98% of the population is non-indigenous.



Municipality Population

Municipality	Population
San Agustín Acasagustlán	43,974
Sanarate	41,995
Guastatoya	25,277
San Antonio la Paz	19,499
Morazán	12,944
Sansare	12,570
El Júcaro	11,392
San Cristobal Acasagustlán	7,641



**Multi-Hazard Risk Rank:
Very Low (21 of 22)**

**Lack of Resilience Rank:
Low (18 of 22)**

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very Low		Low		Very Low		Low		Very High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.360	21	0.411	18	0.257	19	0.421	16	0.598	4

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 19 of 22 Departments (Score: 0.257)

Table 2. Estimated ambient population² exposed to each hazard



46%

83,320 People

Cyclone



100%

182,505 People

Earthquake



37%

66,775 People

Volcano



10%

18,688 People

Flood



1%

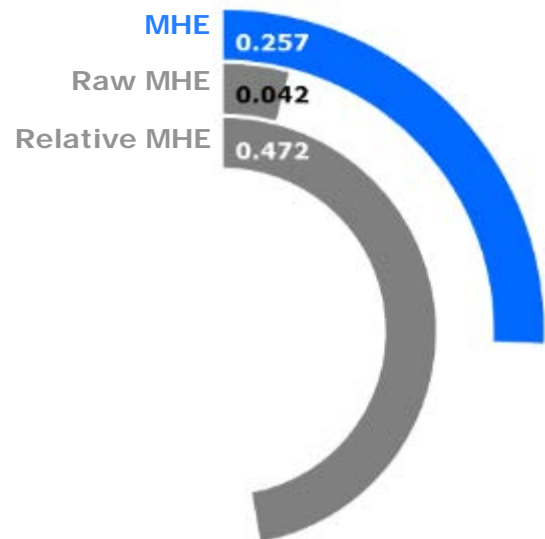
2,660 People

Landslide

Case Study: 'Yo Me Adapto'

A Pan American Development Foundation (PADF) program designed to decrease food instability in the region, "Yo Me Adapto" is designed to teach farmers climate-smart agriculture to adapt to changes in climate and maximize crop yields. With funding from USAID/OFDA, and in partnership with the Universidad del Valle de Guatemala and the Ministry of Agriculture, Livestock and Food, PADF established a demonstration farm to train 1,500 farming families. The center teaches climate-smart agricultural practices such as greenhouses, as well as rain catchment and efficient irrigation systems. Farmers learn how to determine the best varieties of crops to plant, including beans, corn, and sorghum. They also learn methods of soil conservation and the benefits of crop diversification.

<https://www.padf.org/news/2016/5/4/climate-smart-agriculture-program-guatemala>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 16 of 22 Departments (Score: 0.421) Vulnerability in El Progreso is primarily driven by Environmental Stress, Vulnerable Health Status, and Gender Inequality. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

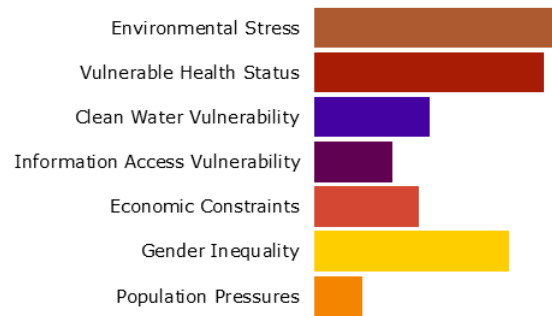









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	85.9% Province at Drought Risk	-1.3% Annual Forest Change					
	Vulnerable Health Status	30 Infant Mortality Rate	120.0 Maternal Mortality Ratio	1.6% Acute Malnutrition	1.7% Population Disabled	2.4 TB Incidence	13.2 Dengue Prevalence	45.4 Malaria Prevalence
	Clean Water Vulnerability	80.9% Households with Access to Improved Water	64.8% Households with Access to Improved Sanitation					
	Information Access Vulnerability	4.9% Adult Illiteracy	6.0 Average Years of Schooling	88.4% Primary School Enrollment	5.2% Households with Internet	48.2% Households with Cable TV	81.5% Households with Radio	1.8% Speak Indigenous Language
	Economic Constraints	0.75 Economic Dependency Ratio	53.2% Population in Poverty	0.42 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.01 Ratio of Female to Male Secondary Education Enrollment	0.25 Ratio of Female to Male Economic Activity				
	Population Pressures	1.6% Average Annual Population Change	0.6% Average Annual Urban Population Change	37.4% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 4 of 22 Departments (Score: 0.598) El Progreso displays a very high level of Coping Capacity, which is attributable to very high Economic Capacity and Infrastructure Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

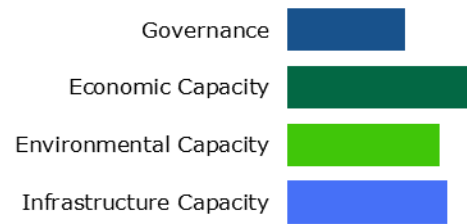









Table 4. Component scores for each Coping Capacity sub-component

	Governance	262.6 Crime Victims per 100K	31.9% Households with Garbage Collection			
	Economic Capacity	\$949.6 Remittances per Capita (USD)	13.3 Businesses per 1,000 persons	15,139 GDP per Capita (Quetzales)		
	Environmental Capacity	19.3% Protected Land	3.0% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	11.7 Hospital Beds per 10,000 Persons	2.2 Nurses per 10,000 Persons	3.3 Physicians per 10,000 Persons	16.4 km Average Distance to Nearest Hospital	98.3% Children Completed Immunization Schedule
	Communications Capacity	8.5% Households with Access to Fixed Phone Line	86.7% Households with Access to Mobile Phone	99.4% Households with Access to Electricity		
	Transportation Capacity	47.6km Average Distance to Nearest Port or Airport	17.2km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 18 of 22 Departments (Score: 0.411)

El Progreso's score and ranking are due to low Vulnerability combined with very high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Vulnerable Health Status



Environmental Stress



Gender Inequality

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 21 of 22 Departments (Score: 0.360)

El Progreso's very low Multi-Hazard Risk is a result of very low Multi-Hazard Exposure combined with low Vulnerability and very high Coping Capacity.

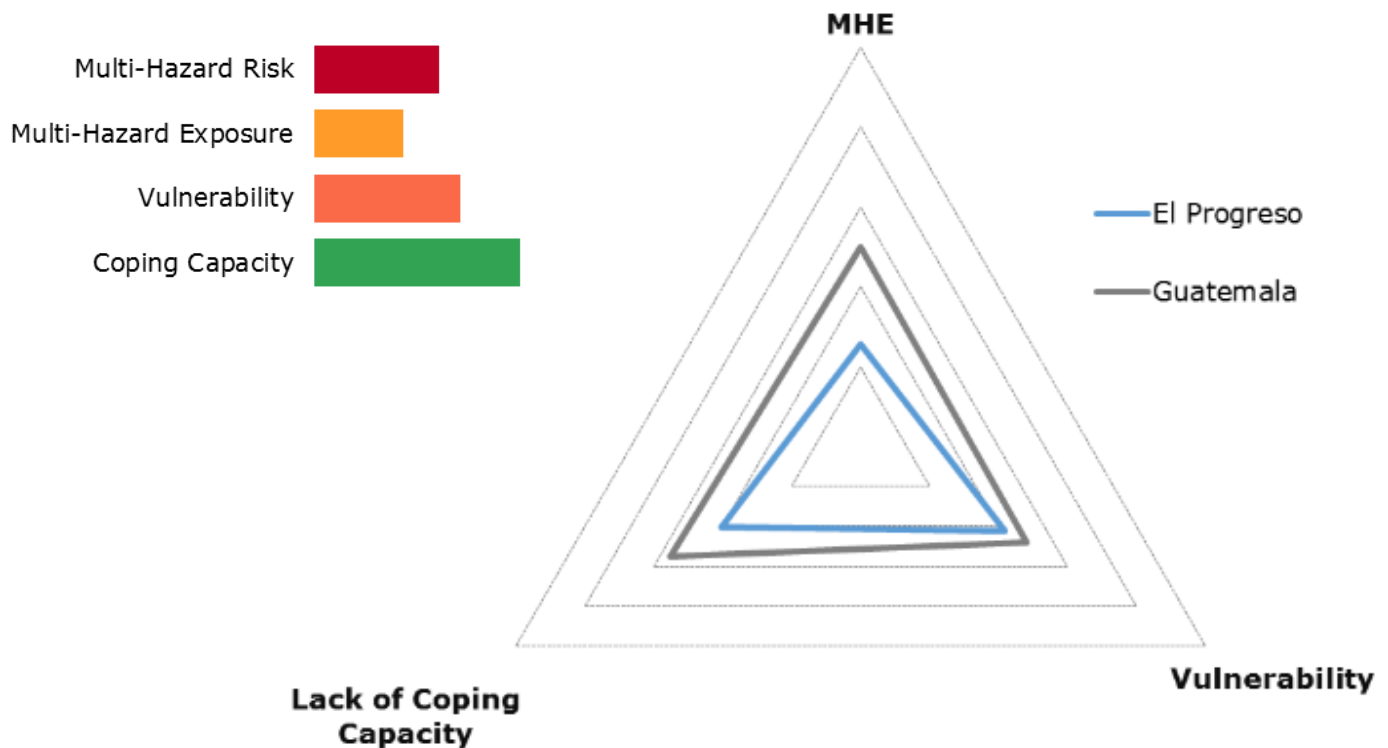


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest population pressures

Ranked 22 of 22 departments, limited population change allows disaster managers to form accurate evacuation, sheltering, and resource plans.



High information access

High information access indicates that the population has an increased ability to access and comprehend disaster-related information before, during, and after events.



High economic capacity

Ranked 2 of 22 departments, high environmental capacity indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.

Recommendations

01

Provide health education and access

Increased early health education and access for special-needs populations and new/expectant mothers can decrease health vulnerability. Additional health-care infrastructure (doctors and nurses) will increase access to critical services before, during, and after disaster events.

02

Promote drought-resistant farming methods

A high percentage of the department is at risk of drought. Programs that promote drought-resistant crops and farming methods will decrease vulnerability to drought in the department.

03

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve resilience and decrease vulnerability.



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Guatemala: Escuintla

**National Disaster Preparedness Baseline Assessment –
Department Profile**

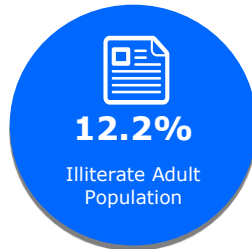
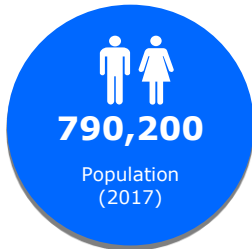
Department: Escuintla



Department Capital: Escuintla

Area: 4,384 km²

Escuintla is located in southern Guatemala, south of Guatemala City. Escuintla borders the Pacific Ocean to the south and has the country's longest maritime border. The major products are sugar cane, cattle, seafood, and tobacco. Escuintla produces over 40% of the country's Gross Domestic Product.



Municipality

- Escuintla
- Santa Lucía Cotzumalguapa
- Palín
- La Gomera
- Nueva Concepción
- Tiquizate
- San José
- Masagua
- La Democracia
- Siquinalá
- Guanagazapa
- San Vicente Pacaya
- Iztapa

Population

- 165,922
- 149,043
- 72,676
- 64,931
- 63,806
- 62,411
- 55,611
- 50,340
- 28,445
- 26,895
- 19,337
- 18,859
- 11,922



Multi-Hazard Risk Rank: High (6 of 22)

Lack of Resilience Rank: Moderate (12 of 22)

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
High		Moderate		High		Low		Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.563	6	0.508	12	0.674	7	0.412	17	0.397	16

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 7 of 22 Departments (Score: 0.674)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

705,665 People



Earthquake

100%

705,665 People



Volcano

40%

283,563 People



Flood

38%

269,566 People



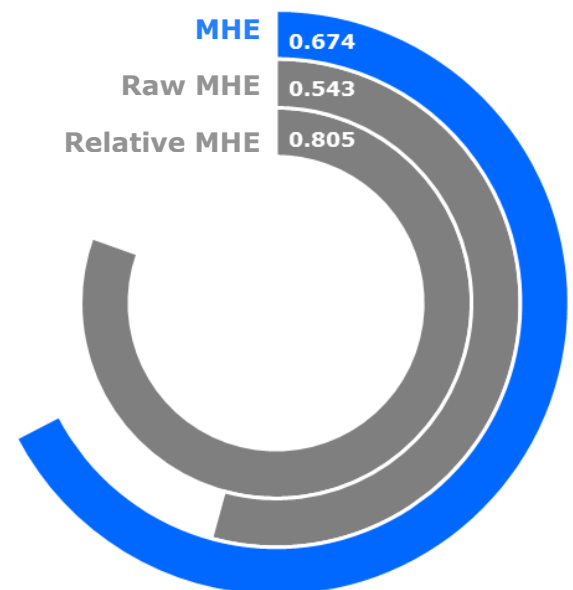
Landslide

1%

3,946 People

USSOUTHCOM-Built EOC and Warehouse

United States Southern Command, in cooperation with CONRED, recently financed and built a new EOC and storage warehouse in Escuintla Department using Humanitarian Assistance Program funds. The structure, consisting of offices, a small room EOC, and thousands of square feet of warehouse space, is occupied daily by personnel from la Coordinadora Departamental para la Reducción de Desastres (CODRED) for Escuintla.



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 17 of 22 Departments (Score: 0.412) Vulnerability in Escuintla is primarily driven by Vulnerable Health Status and Clean Water Vulnerability. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

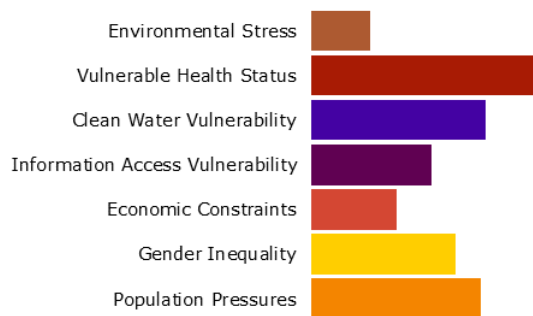









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	27.2% Province at Drought Risk	2.1% Annual Forest Change					
	Vulnerable Health Status	26 Infant Mortality Rate	229.3 Maternal Mortality Ratio	1.1% Acute Malnutrition	3.4% Population Disabled	56.0 TB Incidence	33.2 Dengue Prevalence	10.2 Malaria Prevalence
	Clean Water Vulnerability	57.2% Households with Access to Improved Water	71.8% Households with Access to Improved Sanitation					
	Information Access Vulnerability	12.2% Adult Illiteracy	5.7 Average Years of Schooling	87.1% Primary School Enrollment	3.4% Households with Internet	48.6% Households with Cable TV	78.0% Households with Radio	7.4% Speak Indigenous Language
	Economic Constraints	0.67 Economic Dependency Ratio	52.9% Population in Poverty	0.42 GINI Coefficient				
	Gender Inequality	16.7% Female Seats in Congress	0.02 Ratio of Female to Male Secondary Education Enrollment	0.20 Ratio of Female to Male Economic Activity				
	Population Pressures	3.2% Average Annual Population Change	2.6% Average Annual Urban Population Change	48.6% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 16 of 22 Departments (Score: 0.397) Escuintla displays a low level of Coping Capacity, which is attributable to low Governance and Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department’s overall Coping Capacity score.

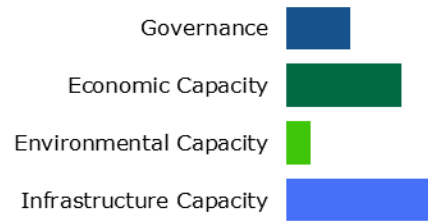


Table 4. Component scores for each Coping Capacity sub-component

	Governance	566.1 Crime Victims per 100K	17.0% Households with Garbage Collection			
	Economic Capacity	\$454.7 Remittances per Capita (USD)	13 .0 Businesses per 1,000 Persons	13,414 GDP per Capita (Quetzales)		
	Environmental Capacity	1.9% Protected Land	0.7% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	4.6 Hospital Beds per 10,000 Persons	8.7 Nurses per 10,000 Persons	6.8 Physicians per 10,000 Persons	25.1 km Average Distance to Nearest Hospital	91.5% Children Completed Immunization Schedule
	Communications Capacity	6.5% Households with Access to Fixed Phone Line	87.8% Households with Access to Mobile Phone	97.0% Households with Access to Electricity		
	Transportation Capacity	35.0 km Average Distance to Nearest Port or Airport	20.6 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 12 of 22 Departments (Score: 0.508)

Escuintla’s score and ranking are due to low Vulnerability combined with low Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Vulnerable Health Status



Environmental Capacity



Clean Water Vulnerability

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 6 of 22 Departments (Score: 0.563)

Escuintla’s score and ranking are due to low Vulnerability, high Multi-Hazard Exposure combined with low Coping Capacity scores.

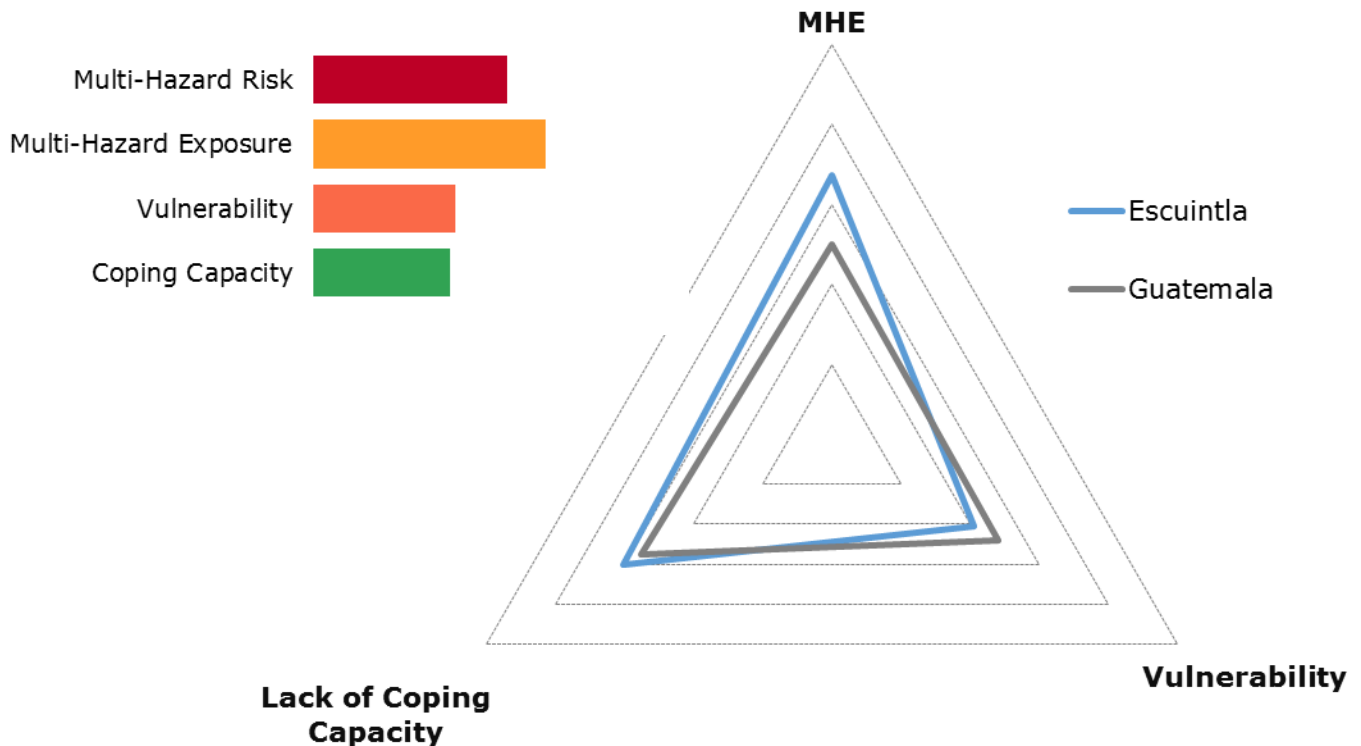


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country’s normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low economic constraints

Ranked 21 of 22 departments, low economic constraints indicate that Escuintla may be able to invest in additional mitigation and preparedness measures at the local and community level.



Low gender inequality

Ranked 21 of 22 departments, low gender inequality indicates that vulnerable populations are more likely to have their needs met under 'normal' conditions and may be less susceptible during times of disaster.



High overall infrastructure capacity

Ranked 4 of 22 departments, well developed infrastructure – communication, health care, transportation - facilitates the exchange of information, and physical distribution of goods and services to the population.

Recommendations

01

Increase environmental programs

Invest in programs to provide protection for the environment, including protected lands and reforestation projects, to increase the ability of the environment to recover after a disaster.

02

Invest in family and child services

Provide early health education programs and access to health care, especially for new mothers and infants to increase resilience to injury, disease, and stress associated with disasters.



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Guatemala: Guatemala

**National Disaster Preparedness Baseline Assessment –
Department Profile**

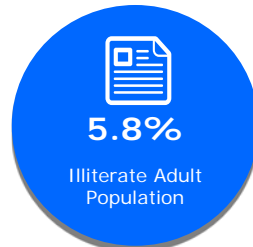
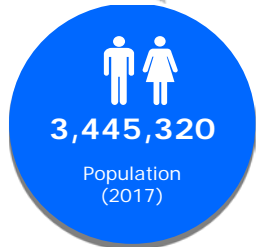
Department: Guatemala



Department Capital: Guatemala City

Area: 2,126 km²

As the nation's capital, Guatemala City, houses the majority of the federal offices, and accounts for more than half of the industrial establishments and production of the republic.



Municipality

Municipality	Population
Guatemala	994,604
Villa Nueva	587,563
Mixco	501,017
San Juan Sacatepéquez	247,173
Petapa	201,384
Villa Canales	165,698
Chinautla	139,701
Amatitlán	121,953
Santa Catarina Pinula	101,096
San Pedro Ayampuc	85,693
San José Pinula	83,433
Palencia	65,079
Fraijanes	51,570
San Pedro Sacatepéquez	46,109
San Raimundo	33,099
Churranchito	14,090
San José del Golfo	6,057

Population



**Multi-Hazard Risk Rank:
High (8 of 22)**

**Lack of Resilience Rank:
Very Low (21 of 22)**

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
High		Very Low		Very High		Very Low		High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.557	8	0.379	21	0.913	1	0.300	22	0.541	5

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 1 of 22 Departments (Score: 0.913)

Table 2. Estimated ambient population² exposed to each hazard



100%

3,311,036 People

Cyclone



100%

3,311,036 People

Earthquake



75%

2,485,338 People

Volcano



4%

126,912 People

Flood



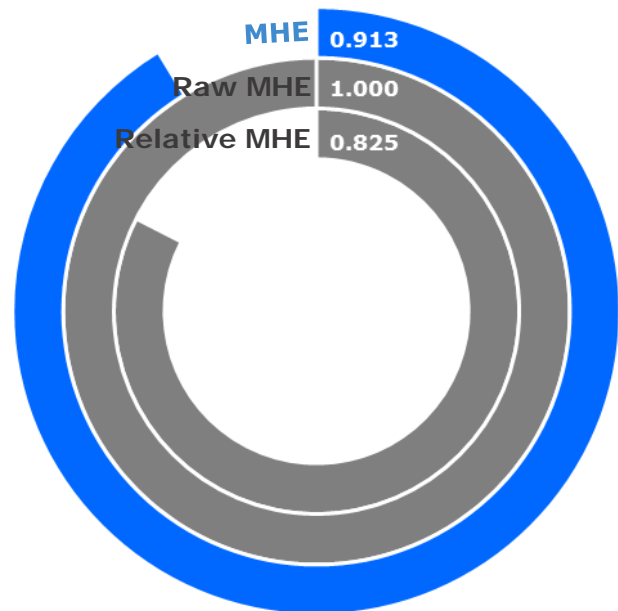
5%

178,896 People

Landslide

El Cambray Dos Landslide

On October 1, 2015, one of the worst landslides in history devastated the village of El Cambray Dos in the municipality of Santa Catarina Pinula with a death toll near 300. Preceded by days of heavy rains during the Guatemala rainy season, the hillside gave way and buried over 100 homes, some in over 15m of debris. Occurring at night, the disaster hit while most people were in the homes unaware of the pending danger. Government officials had issued warnings to residents regarding the instability of the region and urged families to relocate.



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 22 of 22 Departments (Score: 0.300) Very low Vulnerability in Guatemala is primarily driven by very low Information Access and Clean Water Vulnerabilities. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

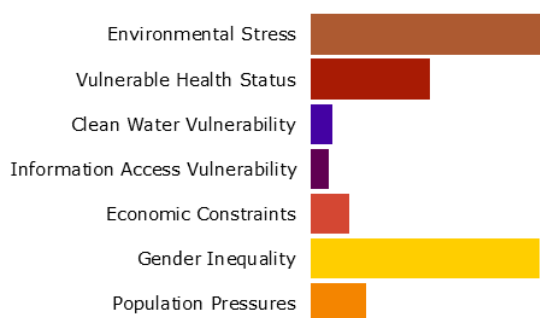









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	70.3% Province at Drought Risk	-2.5% Annual Forest Change					
	Vulnerable Health Status	24 Infant Mortality Rate	24.5 Maternal Mortality Ratio	1.0% Acute Malnutrition	4.3% Population Disabled	16.3 TB Incidence	16.6 Dengue Prevalence	2.3 Malaria Prevalence
	Clean Water Vulnerability	90.5% Households with Access to Improved Water	89.7% Households with Access to Improved Sanitation					
	Information Access Vulnerability	5.8% Adult Illiteracy	7.6 Average Years of Schooling	92.9% Primary School Enrollment	19.6% Households with Internet	60.9% Households with Cable TV	91.1% Households with Radio	14.2% Speak Indigenous Language
	Economic Constraints	0.56 Economic Dependency Ratio	33.3% Population in Poverty	0.47 GINI Coefficient				
	Gender Inequality	15.6% Female Seats in Congress	0.07 Ratio of Female to Male Secondary Education Enrollment	0.31 Ratio of Female to Male Economic Activity				
	Population Pressures	2.5% Average Annual Population Change	1.4% Average Annual Urban Population Change	29.1% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 5 of 22 Departments (Score: 0.541) Guatemala displays a high level of Coping Capacity, which is attributable to high Economic and Infrastructure Capacities. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

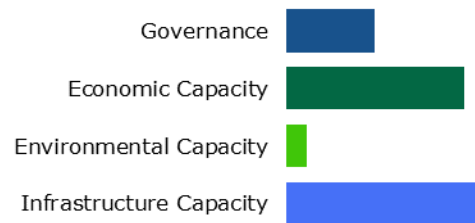


Table 4. Component scores for each Coping Capacity sub-component

	Governance	486.6 Crime Victims per 100K	29.5% Households with Garbage Collection			
	Economic Capacity	\$270.8 Remittances per Capita (USD)	25.9 Businesses per 1,000 Persons	29,869 GDP per Capita (Quetzales)		
	Environmental Capacity	2.5% Protected Land	0.2% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	16.4 Hospital Beds per 10,000 Persons	15.9 Nurses per 10,000 Persons	11.9 Physicians per 10,000 Persons	13.8 km Average Distance to Nearest Hospital	91.5% Children Completed Immunization Schedule
	Communications Capacity	21.8% Households with Access to Fixed Phone Line	91.5% Households with Access to Mobile Phone	99.9% Households with Access to Electricity		
	Transportation Capacity	20.2km Average Distance to Nearest Port or Airport	40.3km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 21 of 22 Departments (Score: 0.379)

Guatemala's score and ranking are due to very low Vulnerability combined with high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Environmental Stress



Governance

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 8 of 22 Departments (Score: 0.557)

Guatemala's Multi-Hazard Risk score and ranking are driven primarily by its very high Multi-Hazard Exposure combined with very low Vulnerability, and high Coping Capacity scores.

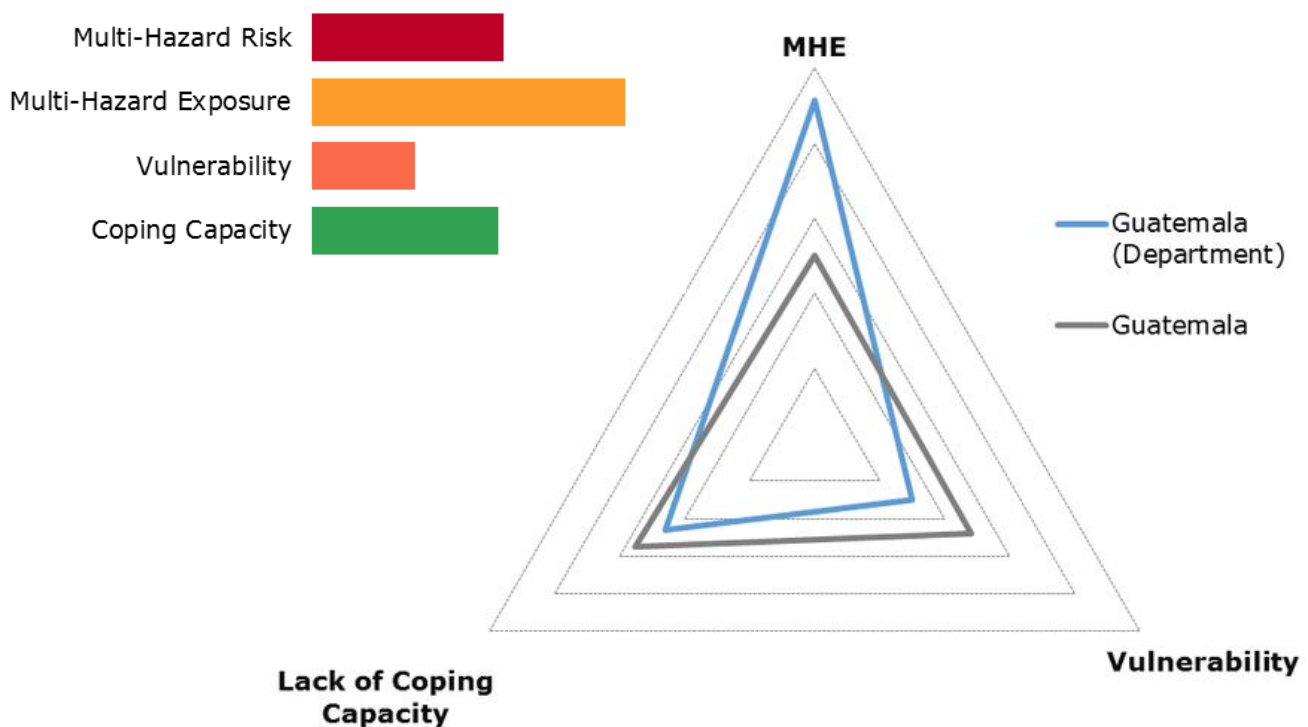


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest overall vulnerability

Ranked 22 of 22 departments, low overall vulnerability indicates that Guatemala department is less susceptible to the negative impacts of a disaster and will likely recover faster after an event.



Lowest poverty rate

Ranked 22 of 22 departments (33.3% Poverty Rate), low poverty rates indicate an increased ability to invest in mitigation and preparedness measures at the individual, household, and department level.



Highest infrastructure capacity

Ranked 1 of 22 departments, well developed infrastructure – communication, health care, transportation - facilitates the exchange of information, and physical distribution of goods and services to the population.

Recommendations

01

Provide increased opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve resilience and decrease vulnerability.

02

Increase governance

High crime rates in the capital city result in low governance scores. Youth-education programs, increased law enforcement, and personal safety-education messages can decrease crime and increase coping capacity.

03

Introduce environmental programs

While environmental programs are not weighted heavily in the analysis, an increased emphasis on land preservation, reforestation, and drought-resistant farming can decrease vulnerability and increase coping capacity.



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Guatemala: Huehuetenango

**National Disaster Preparedness Baseline Assessment –
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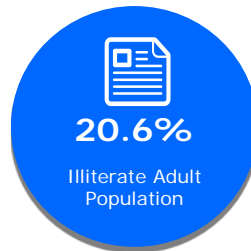
Department: Huehuetenango



Department Capital: Huehuetenango

Area: 7,403 km²

Huehuetenango is located in the western highlands region of Guatemala and borders Mexico both to the north and west. Huehuetenango has the most ethnically diverse populations with many of the local Mayan groups speaking their own languages.



Municipality

Santa Cruz Barillas	177,354
Huehuetenango	123,918
Chiantla	107,555
Cuilco	64,234
Aguacatán	58,523
Soloma	56,748
Santa Eulalia	55,194
Nentón	52,133
San Idelfonso Ixtahuacán	49,581
Jacaltenango	48,667
La Democracia	47,535
San Mateo Ixtatán	43,750
La Libertad	42,237
Todos Santos Cuchumatán	39,049
San Pedro Necta	36,837
San Sebastián Huehuetenango	32,693
San Juan Ixcoy	30,782
Colotenango	28,454
San Sebastián Coatán	27,465
San Miguel Acatán	26,719
Malacatancito	23,513
Unión Cantinil	21,414
San Antonio Huista	20,617
Concepción	19,558
Santa Bárbara	17,811
San Juan Atitán	16,261

Population



Multi-Hazard Risk Rank: Moderate (10 of 22)

Lack of Resilience Rank: High (6 of 22)

RVA Component Scores

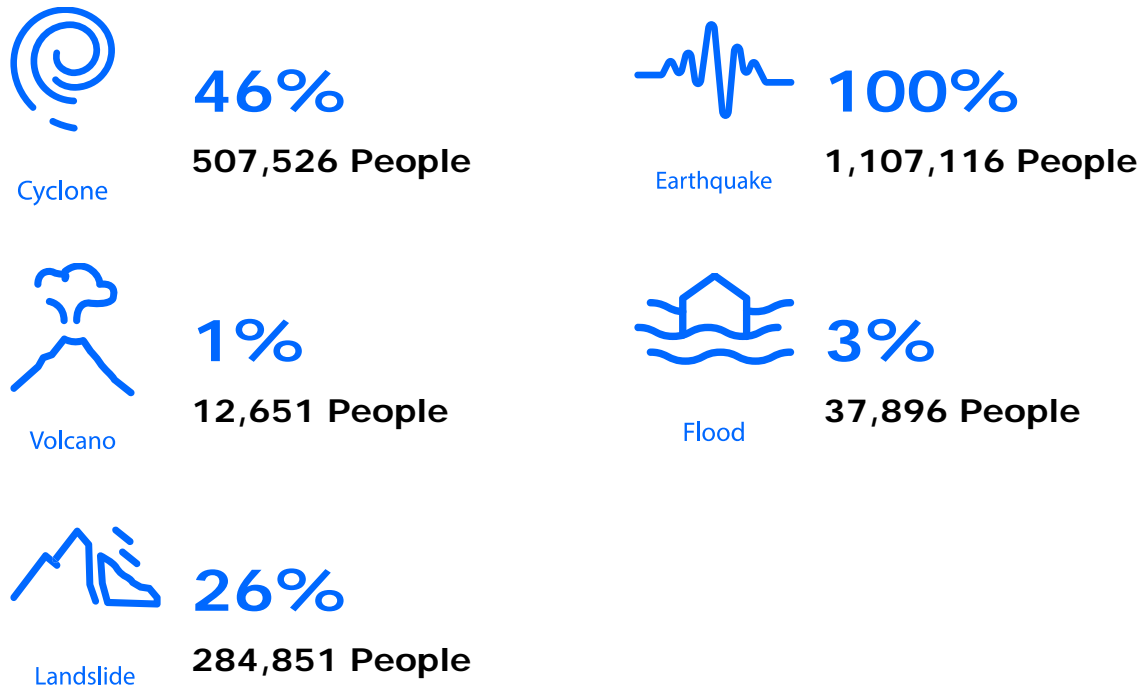
Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Moderate		High		Moderate		Moderate		Very Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.541	10	0.575	6	0.471	12	0.466	11	0.316	19

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 12 of 22 Departments (Score: 0.471)

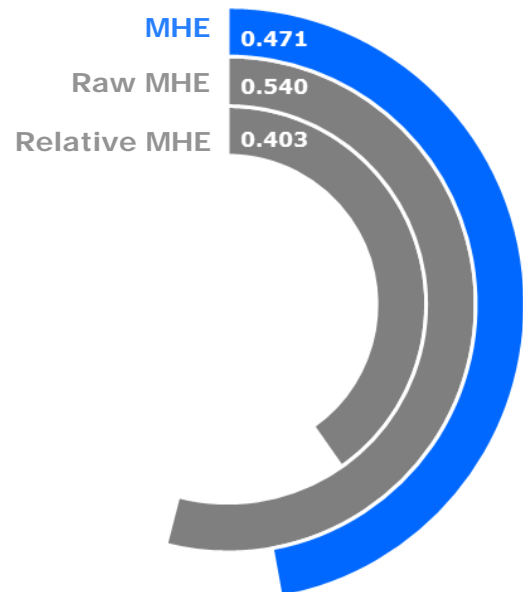
Table 2. Estimated ambient population² exposed to each hazard



Save the Children

Save the Children opened its offices in Guatemala in 1999. Save the Children works alongside community and national stakeholders to increase access to quality early-child development and bilingual, multicultural education across almost 80 communities in the departments of Quiché, Huehuetenango, and Sololá. Save the Children promotes early childhood-development training for parents and activities for teachers, targeted school health and nutrition strategies for creating healthier learning environments, youth financial literacy, and the promotion of learner-centered teaching methodologies that ease children's transitions to formal education, while celebrating their cultural heritage and individual learning styles.

<http://www.savethechildren.org/site/c.8rKLIXMGIpI4E/b.6151425/>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 11 of 22 Departments (Score: 0.466) Vulnerability in Huehuetenango is primarily driven by Information Access Vulnerability, Economic Constraints, and Clean Water Vulnerability. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

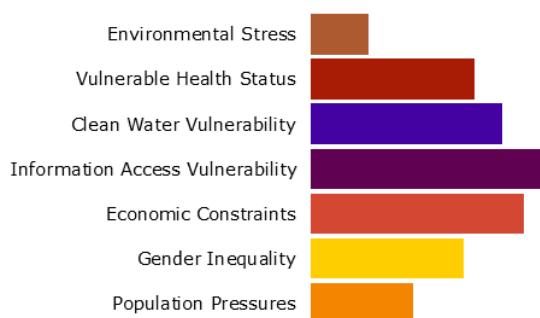









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	32.9% Province at Drought Risk	2.6% Annual Forest Change					
	Vulnerable Health Status	49 Infant Mortality Rate	218.8 Maternal Mortality Ratio	0.4% Acute Malnutrition	1.02% Population Disabled	13.4 TB Incidence	2.4 Dengue Prevalence	6.2 Malaria Prevalence
	Clean Water Vulnerability	78.9% Households with Access to Improved Water	37.3% Households with Access to Improved Sanitation					
	Information Access Vulnerability	20.6% Adult Illiteracy	4.2 Average Years of Schooling	81.4% Primary School Enrollment	3.4% Households with Internet	25.5% Households with Cable TV	69.7% Households with Radio	57.5% Speak Indigenous Language
	Economic Constraints	0.86 Economic Dependency Ratio	73.8% Population in Poverty	0.49 GINI Coefficient				
	Gender Inequality	40.0% Female Seats in Congress	0.12 Ratio of Female to Male Secondary Education Enrollment	0.15 Ratio of Female to Male Economic Activity				
	Population Pressures	3.8% Average Annual Population Change	0.7% Average Annual Urban Population Change	33.5% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 19 of 22 Departments (Score: 0.316) Huehuetenango displays a very low level of Coping Capacity, which is attributable to very low Economic Capacity and Infrastructure Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

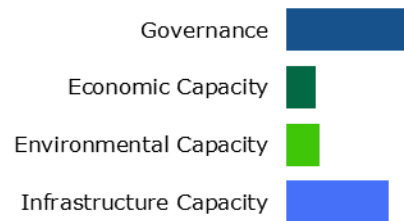









Table 4. Component scores for each Coping Capacity sub-component

	Governance	112.3 Crime Victims per 100K	14.6% Households with Garbage Collection			
	Economic Capacity	\$467.9 Remittances per Capita (USD)	3.4 Businesses per 1,000 Persons	4,113.4 GDP per Capita (Quetzales)		
	Environmental Capacity	1.1% Protected Land	1.4% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	7.6 Hospital Beds per 10,000 Persons	1.7 Nurses per 10,000 Persons	1.6 Physicians per 10,000 Persons	34.0 km Average Distance to Nearest Hospital	93.1% Children Completed Immunization Schedule
	Communications Capacity	4.2% Households with Access to Fixed Phone Line	81.5% Households with Access to Mobile Phone	93.7% Households with Access to Electricity		
	Transportation Capacity	36.1 km Average Distance to Nearest Port or Airport	16.6 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 6 of 22 Departments (Score: 0.575)

Huehuetenango's score and ranking are due to moderate Vulnerability combined with very low Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



**Information
Access
Vulnerability**



**Economic
Constraints**



**Economic
Capacity**

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 10 of 22 Departments (Score: 0.541)

Huehuetenango's score and ranking are due to moderate Multi-Hazard Exposure combined with moderate vulnerability and very low Coping Capacity scores.

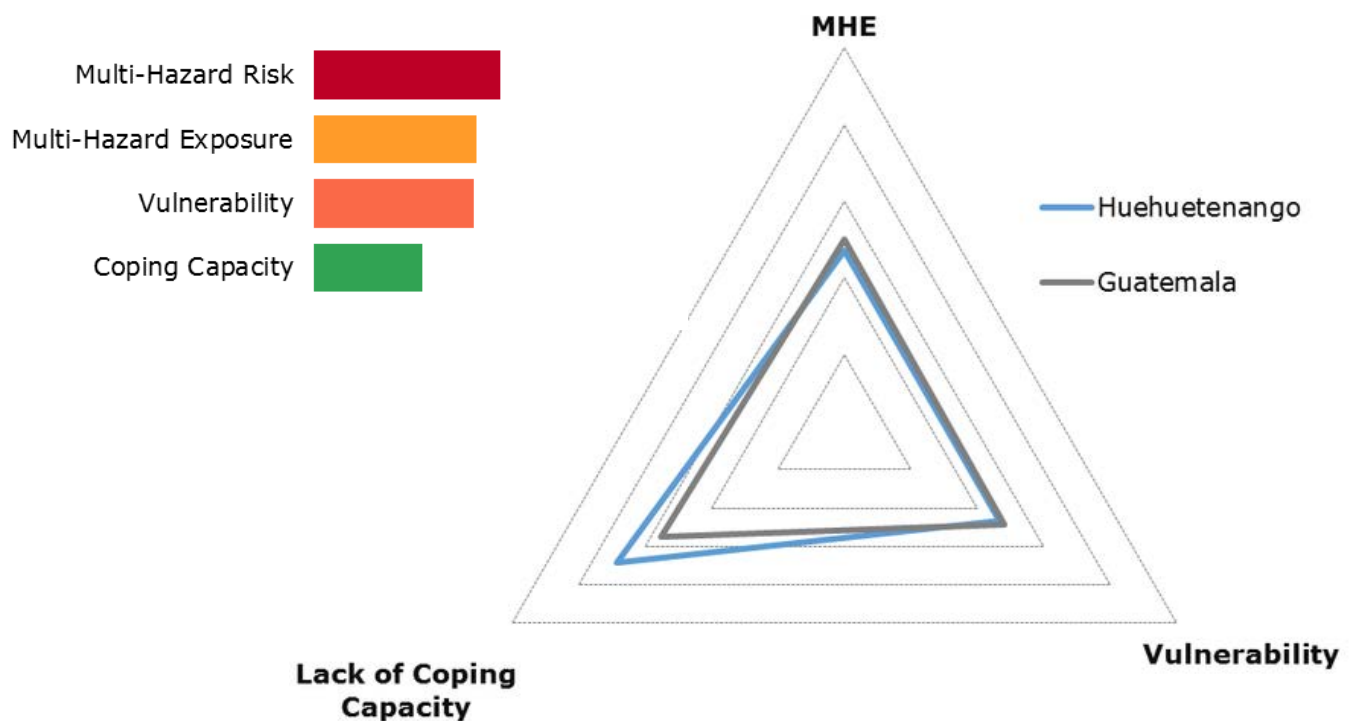


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low environmental stress

Ranked 21 of 22 departments, low environmental stress indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.



Low population pressure

Ranked 18 of 22 departments, limited population change allows disaster managers to form accurate evacuation, sheltering, and resource plans.

Recommendations

01

Invest in communication infrastructure

Increase access to communications for the population through investments in infrastructure and education. By increasing citizen access to information, disaster managers can provide disaster-related information to a greater percentage of the population.

02

Increase economic opportunity

Investment in business development and public education to increase economic capacity.





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Guatemala: Izabal

**National Disaster Preparedness Baseline Assessment –
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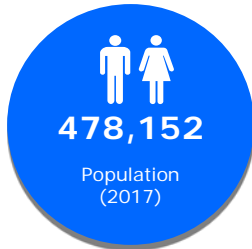
Department: Izabal



Department Capital: Puerto Barrios

Area: 9,038 km²

Izabal is in eastern Guatemala and is bordered to the east by the Gulf of Honduras. The department surrounds Lago Izabal, the country's largest lake, which bisects the department. Puerto Barrios is the main Caribbean Sea port for Guatemala.



Municipality	Population
Morales	129,415
Puerto Barrios	115,260
El Estor	95,195
Livingston	71,858
Los Amates	66,424



**Multi-Hazard Risk Rank:
Low (15 of 22)**

**Lack of Resilience Rank:
Moderate (13 of 22)**

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Low		Moderate		Low		Moderate		Moderate	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.470	15	0.501	13	0.407	16	0.441	12	0.439	10

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 16 of 22 Departments (Score: 0.407)

Table 2. Estimated ambient population² exposed to each hazard



46%

189,461 People

Cyclone



100%

411,371 People

Earthquake



0%

0 People

Volcano



60%

245,212 People

Flood



<1%

223 People

Landslide

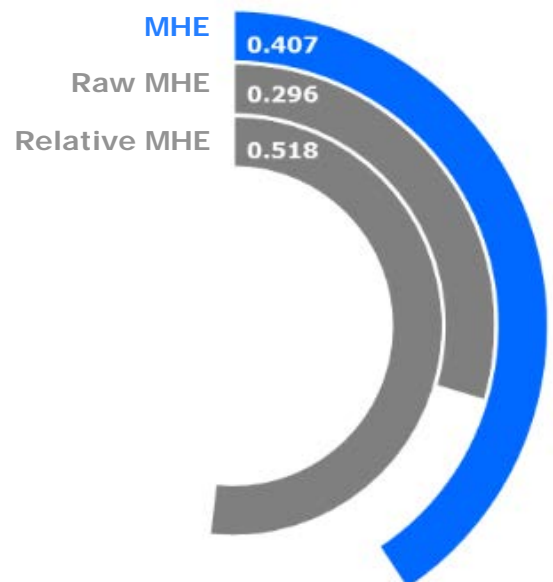
Guatemala Earthquake of February 4, 1976

One of the most destructive earthquakes ever to strike Guatemala occurred on February 4, 1976. The magnitude 7.5 quake's hypocenter was located at a depth of 5 km near the town of Los Amates in the department of Izabal.

Cities throughout the country suffered damage, and most adobe-type houses in the outlying areas of Guatemala City were completely destroyed. The earthquake struck during the early morning when most people were asleep. This contributed to the high death toll of 23,000. Approximately 76,000 were injured, and many thousands left homeless. Some areas went without electricity and communication for days.

Transportation was impeded by landslides. Food and water supplies were severely reduced. The main shock was followed by thousands of aftershocks, some of the larger ones causing additional loss of life and damage.

<https://worldhistoryproject.org/1976/2/4/guatemala-earthquake>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 12 of 22 Departments (Score: 0.441) Vulnerability in Izabal is primarily driven by Vulnerable Health Status and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

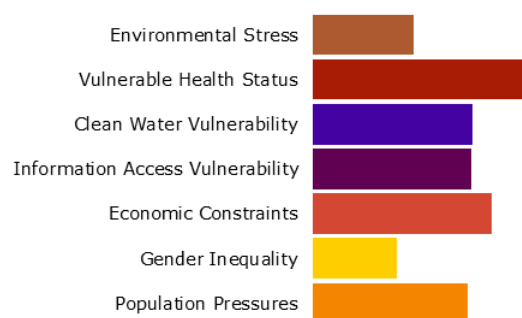









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	3.2% Province at Drought Risk	-1.5% Annual Forest Change					
	Vulnerable Health Status	23 Infant Mortality Rate	224.4 Maternal Mortality Ratio	1.2% Acute Malnutrition	1.5% Population Disabled	14.2 TB Incidence	20.3 Dengue Prevalence	17.2 Malaria Prevalence
	Clean Water Vulnerability	68.6% Households with Access to Improved Water	62.6% Households with Access to Improved Sanitation					
	Information Access Vulnerability	16.9% Adult Illiteracy	5.9 Average Years of Schooling	77.1% Primary School Enrollment	6.5% Households with Internet	48.8% Households with Cable TV	76.5% Households with Radio	26.9% Speak Indigenous Language
	Economic Constraints	0.80 Economic Dependency Ratio	59.9% Population in Poverty	0.51 GINI Coefficient				
	Gender Inequality	33.3% Female Seats in Congress	0.04 Ratio of Female to Male Secondary Education Enrollment	0.08 Ratio of Female to Male Economic Activity				
	Population Pressures	3.5% Average Annual Population Change	2.4% Average Annual Urban Population Change	43.2% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 10 of 22 Departments (Score: 0.439) Izabal displays a moderate level of Coping Capacity, which is attributable to low Infrastructure Capacity and moderate Economic and Environmental Capacities. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

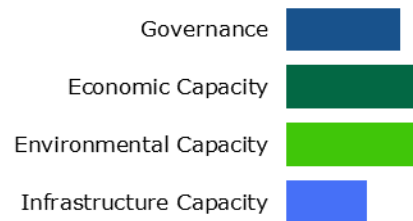









Table 4. Component scores for each Coping Capacity sub-component

	Governance	298.3 Crime Victims per 100K	15.3% Households with Garbage Collection			
	Economic Capacity	\$556.0 Remittances per Capita (USD)	15.7 Businesses per 1,000 persons	13,360.5 GDP per Capita (Quetzales)		
	Environmental Capacity	30.5% Protected Land	1.6% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	5.0 Hospital Beds per 10,000 Persons	3.2 Nurses per 10,000 Persons	2.55 Physicians per 10,000 Persons	42.9 km Average Distance to Nearest Hospital	90.6% Children Completed Immunization Schedule
	Communications Capacity	9.7% Households with Access to Fixed Phone Line	73.5% Households with Access to Mobile Phone	85.3% Households with Access to Electricity		
	Transportation Capacity	20.4 km Average Distance to Nearest Port or Airport	8.7 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 13 of 22 Departments (Score: 0.501)

Izabal's score and ranking are due to moderate Vulnerability and Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Vulnerable Health Status



Economic Constraints



Infrastructure Capacity

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 15 of 22 Departments (Score: 0.470)

Izabal's score and ranking are due to low Multi-Hazard Exposure combined with moderate Vulnerability and Coping Capacity scores.

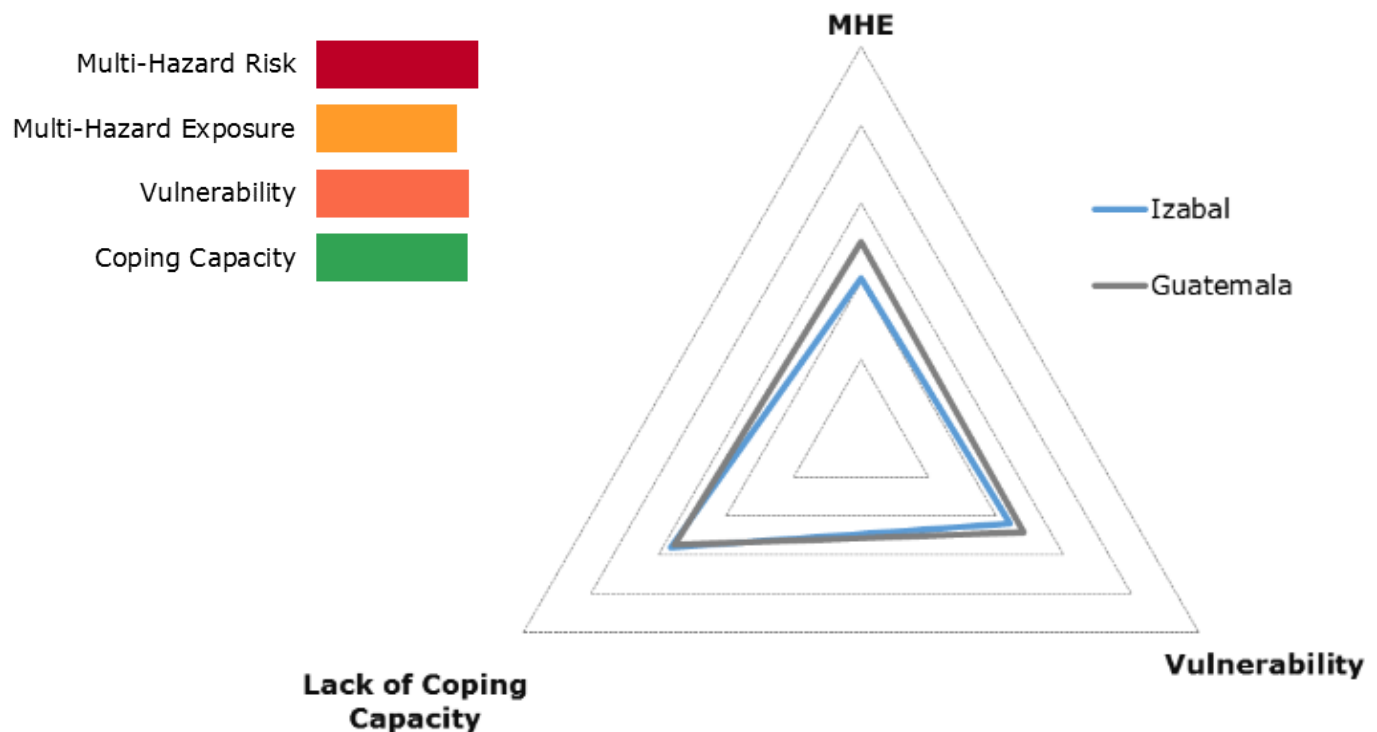


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest gender inequality

Ranked 22 of 22 departments, low gender inequality indicates that vulnerable populations are more likely to have their needs met under 'normal' conditions and may be less susceptible during times of disaster.



Low environmental stress

Ranked 17 of 22 departments, low environmental stress indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.

Recommendations

01

Invest in public health education

Despite adequate health care infrastructure, health vulnerability is a major factor in Izabal's Vulnerability. By providing education programs to the public, especially young/expectant mothers and special needs populations, vulnerability can be decreased.

02

Invest in communication infrastructure

Increase access to communications for the population through investments in infrastructure and education. By increasing citizen access to information, disaster managers can provide disaster-related information to a greater percentage of the population.



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Guatemala: Jalapa

Image: Google

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Department Profile**

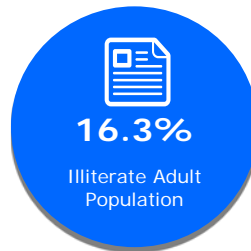
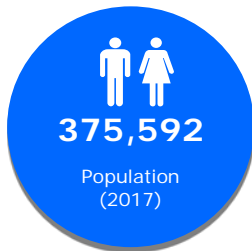
Department: Jalapa



Department Capital: Jalapa

Area: 2,064 km²

Jalapa is in southeastern Guatemala. The department is mountainous with fertile plains and valleys where they grow crops such as corn, black beans, rice, potatoes, yucca, chili, coffee, bananas, tobacco, sugar cane, and wheat.



Municipality	Population
Jalapa	171,068
San Pedro Pinula	69,925
Mataquescuintla	48,885
San Luis Jilotepeque	27,931
Monjas	26,821
San Carlos Alzate	21,411
San Manuel Chaparrón	9,550



Multi-Hazard Risk Rank: Medium (12 of 22)

Lack of Resilience Rank: High (5 of 22)

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Medium		High		Low		High		Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.523	12	0.588	5	0.392	17	0.572	6	0.396	17

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 17 of 22 Departments (Score: 0.392)

Table 2. Estimated ambient population² exposed to each hazard



98%

309,908 People

Cyclone



100%

316,523 People

Earthquake



0%

0 People

Volcano



9%

28,693 People

Flood



7%

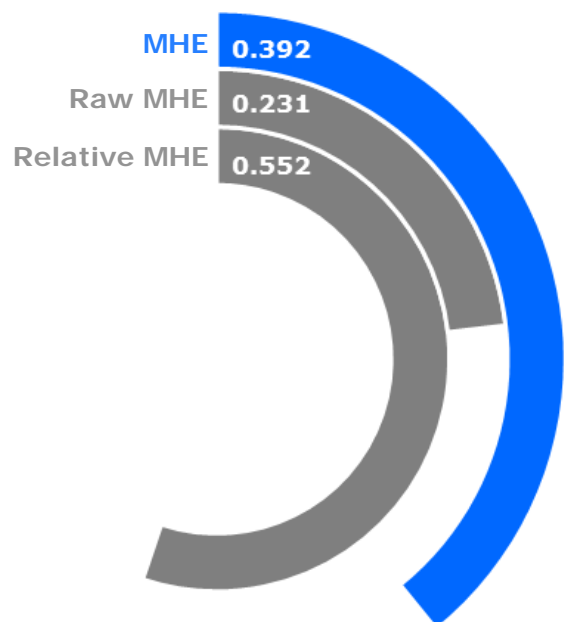
22,918 People

Landslide

Wells of Hope

Overcoming many roadblocks, hurdles, and frustrations, Wells of Hope successfully transported its own drilling equipment to Jalapa, one of the poorest regions of Guatemala. In this mountainous terrain, the women walk anywhere from 2 to 10 kilometers per day in search of water, carrying 20-liter buckets of dirty, bacteria-infested water over steep, mountainous terrain, to their mud-brick, one-room homes. This contaminated water, the only source of water available to these poor, mountain communities, causes the deaths of many children before age 3.

<http://www.wellsofhope.com/>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 6 of 22 Departments (Score: 0.572) Vulnerability in Jalapa is primarily driven by Economic Constraints and Gender Inequality. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

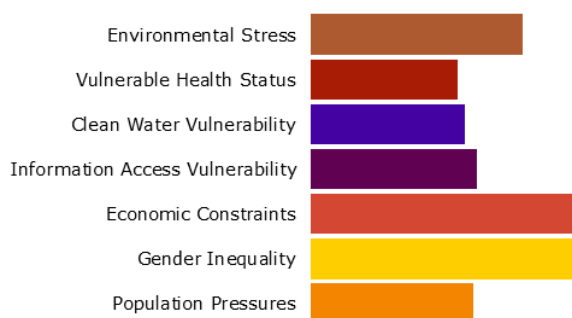









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	75.6% Province at Drought Risk	-0.86% Annual Forest Change					
	Vulnerable Health Status	34 Infant Mortality Rate	45.2 Maternal Mortality Ratio	0.6% Acute Malnutrition	3.6% Population Disabled	4.6 TB Incidence	9.0 Dengue Prevalence	22.3 Malaria Prevalence
	Clean Water Vulnerability	80.4% Households with Access to Improved Water	50.1% Households with Access to Improved Sanitation					
	Information Access Vulnerability	16.3% Adult Illiteracy	4.5 Average Years of Schooling	76.5% Primary School Enrollment	6.8% Households with Internet	40.7% Households with Cable TV	77.6% Households with Radio	0.1% Speak Indigenous Language
	Economic Constraints	0.97 Economic Dependency Ratio	67.2% Population in Poverty	0.58 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.05 Ratio of Female to Male Secondary Education Enrollment	0.35 Ratio of Female to Male Economic Activity				
	Population Pressures	3.5% Average Annual Population Change	3.6% Average Annual Urban Population Change	39.9% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 17 of 22 Departments (Score: 0.396) Jalapa displays a low level of Coping Capacity, which is attributable to very low Environmental Capacity and Governance. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

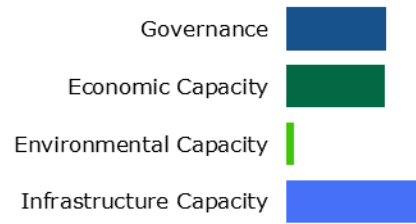


Table 4. Component scores for each Coping Capacity sub-component

	Governance	207.2 Crime Victims per 100K	19.5% Households with Garbage Collection				
	Economic Capacity	\$470.1 Remittances per Capita (USD)	11.97 Businesses per 1,000 persons	10,708 GDP per Capita (Quetzales)			
	Environmental Capacity	1.0% Protected Land	0.6% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	9.2 Hospital Beds per 10,000 Persons	1.4 Nurses per 10,000 Persons	2.4 Physicians per 10,000 Persons	18.2 Km Average Distance to Nearest Hospital	93.4% Children Completed Immunization Schedule	
	Communications Capacity	6.8% Households with Access to Fixed Phone Line	80.8% Households with Access to Mobile Phone	88.3% Households with Access to Electricity			
	Transportation Capacity	44.9 km Average Distance to Nearest Port or Airport	31.5 km Total Length of Road per 100 km ² (area)				

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 5 of 22 Departments (Score: 0.588)

Jalapa's score and ranking are due to high Vulnerability combined with low Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Economic Constraints



Environmental Capacity

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 12 of 22 Departments (Score: 0.523)

Jalapa's score and ranking are low Multi-Hazard Exposure combined with high Vulnerability and low Coping Capacity scores.

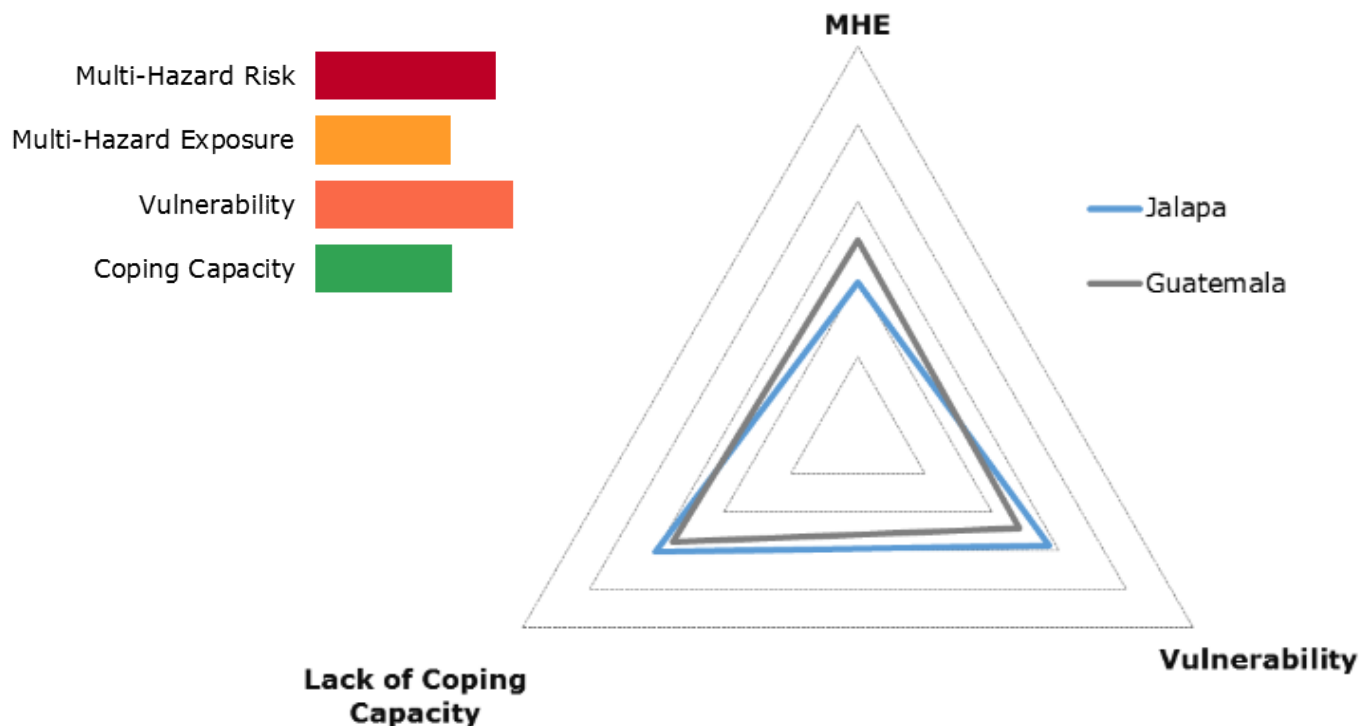


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



High transportation capacity

Ranked 3 of 22 departments, well developed transportation networks facilitate the movement of goods and services, decreasing wait times for response and relief supplies.



Low vulnerable health status

Ranked 15 of 22 departments, low health vulnerability could indicate a population that will be more resilient to the negative health impacts associated with major disaster events.

Recommendations

01

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace will increase the resilience of vulnerable populations.

02

Provide budgeting and financial education

Increase community education in budgeting and finance to promote economic independence and opportunities, reducing economic constraints.

03

Increase environmental programs

While environmental programs are not weighted heavily in the analysis, an increased emphasis on land preservation, reforestation, and drought-resistant farming can decrease vulnerability and increase coping capacity.



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Guatemala: Jutiapa

Image: Google

**National Disaster Preparedness Baseline Assessment –
Department Profile**

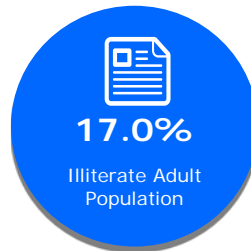
Department: Jutiapa



Department Capital: Jutiapa

Area: 3,217 km²

Jutiapa is in southern Guatemala, bordering El Salvador and the Pacific Ocean. The population is mainly of European descent, and not indigenous, although there are pockets of indigenous peoples in the northern regions. Jutiapa supplies most of the country's grain.



Municipality	Population
Jutiapa	163,227
Moyuta	42,712
Asunción Mita	42,272
Comapa	31,042
Jalpatagua	27,811
Santa Catarina Mita	24,977
Quezada	22,987
Conguaco	21,803
El Progreso	19,252
Yupiltepeque	17,808
Atescatempa	16,159
Acatempa	15,140
Agua Blanca	14,973
Zapotitlán	11,161
Pasaco	10,166
El Adelanto	5,776
Jeréz	5,392



Multi-Hazard Risk Rank: Moderate (13 of 22)

Lack of Resilience Rank: Moderate (9 of 22)

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Moderate		High		Moderate		High		Moderate	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.513	13	0.538	9	0.462	13	0.529	7	0.453	9

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 13 of 22 Departments (Score: 0.462)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

515,444 People



Earthquake

100%

515,444 People



Volcano

0%

0 People



Flood

13%

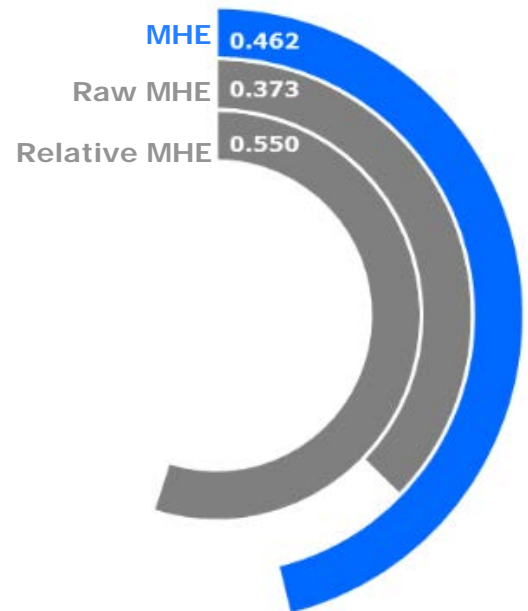
66,795 People



Landslide

1%

4,516 People



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 7 of 22 Departments (Score: 0.529) Vulnerability in Jutiapa is primarily driven by Environmental Stress, Gender Inequality, and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

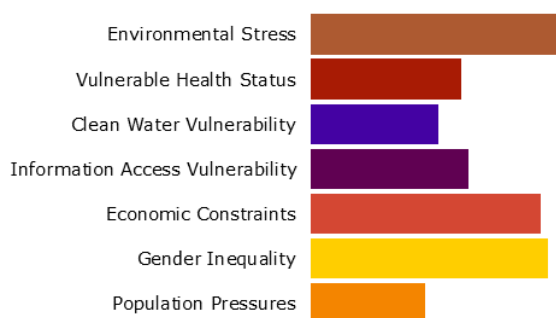









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	65.0% Province at Drought Risk	-3.6% Annual Forest Change					
	Vulnerable Health Status	39 Infant Mortality Rate	6.8 Maternal Mortality Ratio	0.9% Acute Malnutrition	3.9% Population Disabled	7.6 TB Incidence	8.6 Dengue Prevalence	16.4 Malaria Prevalence
	Clean Water Vulnerability	81.2% Households with Access to Improved Water	59.7% Households with Access to Improved Sanitation					
	Information Access Vulnerability	17.0% Adult Illiteracy	5.1 Average Years of Schooling	79.9% Primary School Enrollment	3.7% Households with Internet	41.3% Households with Cable TV	80.2% Households with Radio	3.2% Speak Indigenous Language
	Economic Constraints	0.95 Economic Dependency Ratio	62.7% Population in Poverty	0.53 GINI Coefficient				
	Gender Inequality	25.0% Female Seats in Congress	0.09 Ratio of Female to Male Secondary Education Enrollment	0.34 Ratio of Female to Male Economic Activity				
	Population Pressures	1.6% Average Annual Population Change	1.5% Average Annual Urban Population Change	51.3% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 9 of 22 Departments (Score: 0.453) Jutiapa displays a moderate level of Coping Capacity, which is attributable to low Economic Capacity and Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department’s overall Coping Capacity score.

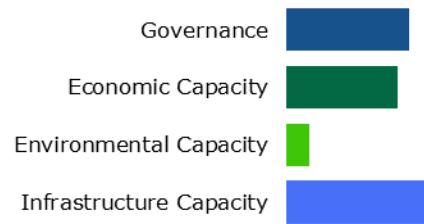









Table 4. Component scores for each Coping Capacity sub-component

	Governance	207.3 Crime Victims per 100K	19.54% Households with Garbage Collection				
	Economic Capacity	\$608.0 Remittances per Capita (USD)	10.9 Businesses per 1,000 persons	10,940 GDP per Capita (Quetzales)			
	Environmental Capacity	2.5% Protected Land	0.3% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	14.6 Hospital Beds per 10,000 Persons	1.3 Nurses per 10,000 Persons	2.1 Physicians per 10,000 Persons	25.3 km Average Distance to Nearest Hospital	95.3% Children Completed Immunization Schedule	
	Communications Capacity	6.1% Households with Access to Fixed Phone Line	81.7% Households with Access to Mobile Phone	94.1% Households with Access to Electricity			
	Transportation Capacity	54.9 km Average Distance to Nearest Port or Airport	21.5 km Total Length of Road per 100 km ² (area)				

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 6 of 22 Departments (Score: 0.575)

Jutiapa's score and ranking are due to high Vulnerability combined with moderate Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Economic Constraints



Environmental Capacity



Gender Inequality

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 10 of 22 Departments (Score: 0.541)

Jutiapa's score and ranking are due to high Vulnerability, moderate Multi-Hazard Exposure, and moderate Coping Capacity scores.

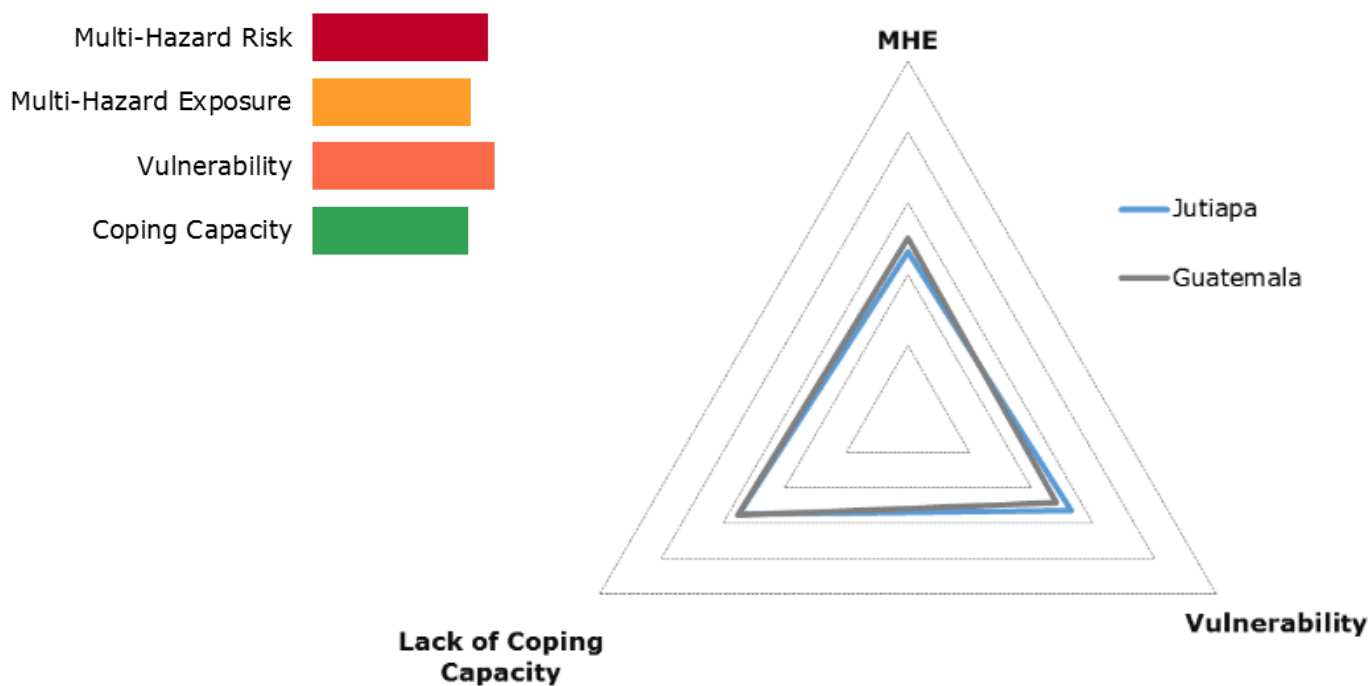


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low clean water vulnerability

Ranked 17 of 22 departments, low clean water vulnerability indicates that a population has access to high water quality and good containment systems, reducing susceptibility to disaster.



High transportation capacity

Ranked 5 of 22 departments, well developed transportation networks facilitate the movement of goods and services, decreasing wait times for response and relief supplies.

Recommendations

01

Provide business opportunities and education

Investment in business development and public education to increase economic capacity.

02

Increase environmental programs

While environmental programs are not weighted heavily in the analysis, an increased emphasis on land preservation, reforestation, and drought-resistant farming can decrease vulnerability and increase coping capacity.

03

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve the resilience of women during disasters.



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Image: Google

Guatemala: Petén

**National Disaster Preparedness Baseline Assessment –
Department Profile**

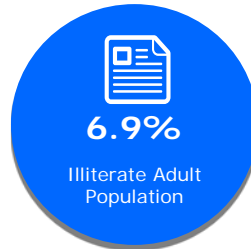
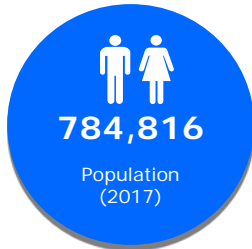
Department: Petén



Department Capital: Flores

Area: 35,854 km²

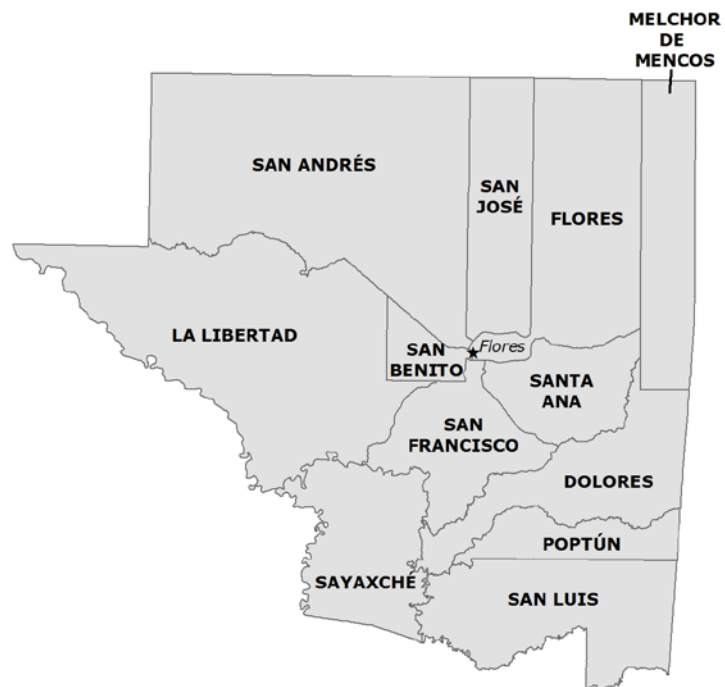
Petén is the northernmost and largest department in Guatemala, and borders Mexico to the north and Belize to the east. While Petén has the highest percentage of protected area in the country, illegal logging and farming operations continue to place the protected areas at risk.



Municipality

Population

Sayaxché	141,487
La Libertad	138,236
San Luis	87,031
Poptún	76,941
San Benito	72,447
Flores	70,142
Dolores	55,631
San Andrés	53,333
Santa Ana	40,871
Melchor de Mencos	21,865
San Francisco	20,625
San José	6,208



**Multi-Hazard Risk Rank:
Very Low (20 of 22)**

**Lack of Resilience Rank:
Very High (2 of 22)**

RVA Component Scores

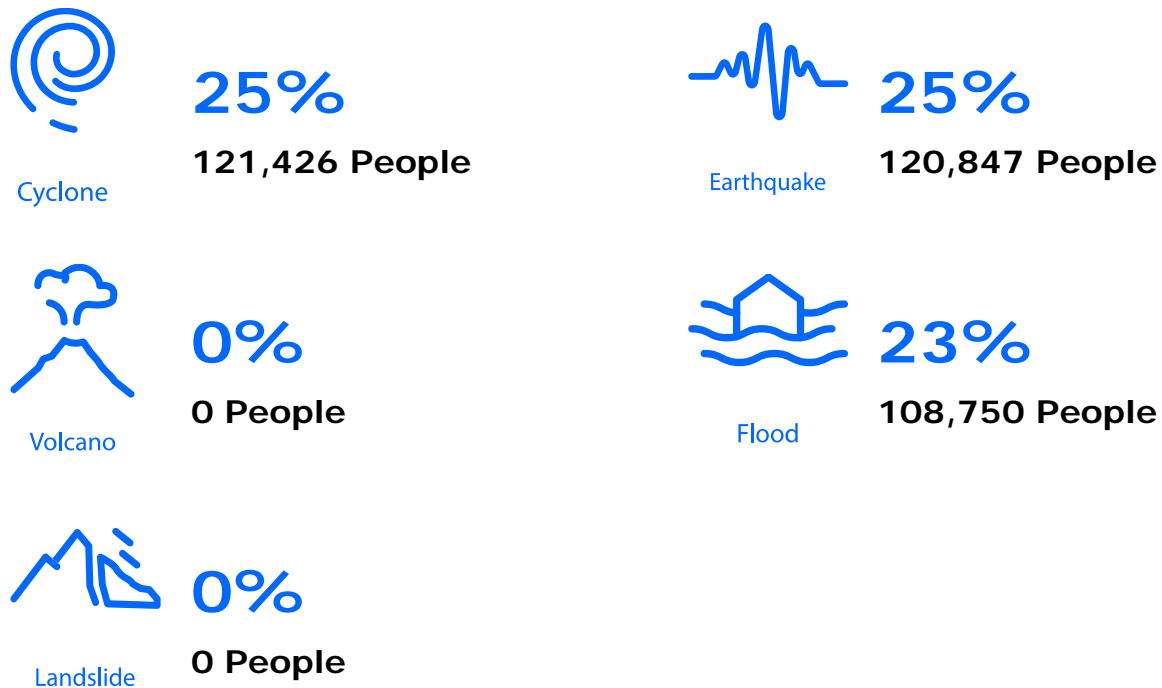
Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very Low		Very High		Very Low		Very High		Very Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.442	20	0.653	2	0.020	22	0.612	3	0.306	22

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 22 of 22 Departments (Score: 0.020)

Table 2. Estimated ambient population² exposed to each hazard



Balancing Conservation and Progress

The northern third of the Petén Department is protected by the Maya Biosphere Reserve, but deforestation is still common in the area, attributable to growing population and land grabs. Despite its designation as a reserve, pressure continue to rise to develop the area to support the ever-increasing population and food insecurities. Forests are cut down to in a practice known as slash-and-burn agriculture. The forests are chopped down and burned, providing temporarily nutrient-rich ash and soil for crop production. When the soil becomes unproductive, new sections of the forest must be cut down and turned into farmland. The cycle continues, and each year more forests become wasteland.

The southern and central sections of the department are almost completely deforested, which has led to declines in annual rainfall and longer/warmer dry seasons.

<https://www.anywhere.com/guatemala/travel-guide/environmental-issues>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 3 of 22 Departments (Score: 0.612) Vulnerability in Petén is primarily driven by Population Pressures, Gender Inequality, and Clean Water Vulnerability. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

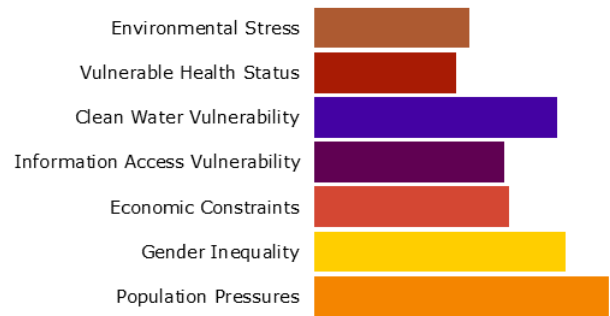









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	26.4% Province at Drought Risk	-2.1% Annual Forest Change					
	Vulnerable Health Status	19 Infant Mortality Rate	87.1 Maternal Mortality Ratio	0.7% Acute Malnutrition	1.1% Population Disabled	12.9 TB Incidence	11.6 Dengue Prevalence	11.0 Malaria Prevalence
	Clean Water Vulnerability	67.2% Households with Access to Improved Water	31.6% Households with Access to Improved Sanitation					
	Information Access Vulnerability	6.9% Adult Illiteracy	5.3 Average Years of Schooling	60.5% Primary School Enrollment	5.2% Households with Internet	41.8% Households with Cable TV	73.8% Households with Radio	32.4% Speak Indigenous Language
	Economic Constraints	0.94 Economic Dependency Ratio	60.8% Population in Poverty	0.48 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.10 Ratio of Female to Male Secondary Education Enrollment	0.20 Ratio of Female to Male Economic Activity				
	Population Pressures	7.8% Average Annual Population Change	7.6% Average Annual Urban Population Change	46.4% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 22 of 22 Departments (Score: 0.306) Petén displays a very low level of Coping Capacity, which is attributable to very low Infrastructure Capacity and very low Governance. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

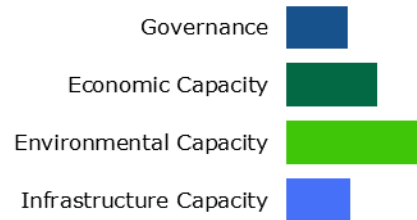


Table 4. Component scores for each Coping Capacity sub-component

	Governance	220.8 Crime Victims per 100K	1.9% Households with Garbage Collection			
	Economic Capacity	\$552.1 Remittances per Capita (USD)	10.27 Businesses per 1,000 persons	8,714.3 GDP per Capita (Quetzales)		
	Environmental Capacity	70.2% Protected Land	0.7% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	5.5 Hospital Beds per 10,000 Persons	1.8 Nurses per 10,000 Persons	2.3 Physicians per 10,000 Persons	47.0 km Average Distance to Nearest Hospital	100% Children Completed Immunization Schedule
	Communications Capacity	3.1% Households with Access to Fixed Phone Line	81.6% Households with Access to Mobile Phone	66.6% Households with Access to Electricity		
	Transportation Capacity	33.6 km Average Distance to Nearest Port or Airport	4.6 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 2 of 22 Departments (Score: 0.653)

Petén's score and ranking are due to very high Vulnerability combined with very low Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Population Pressures



Infrastructure Capacity

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 20 of 22 Departments (Score: 0.442)

Despite Petén's very high Vulnerability and very low Coping Capacity, Multi-Hazard Risk is very low due to very low Multi-Hazard Exposure.

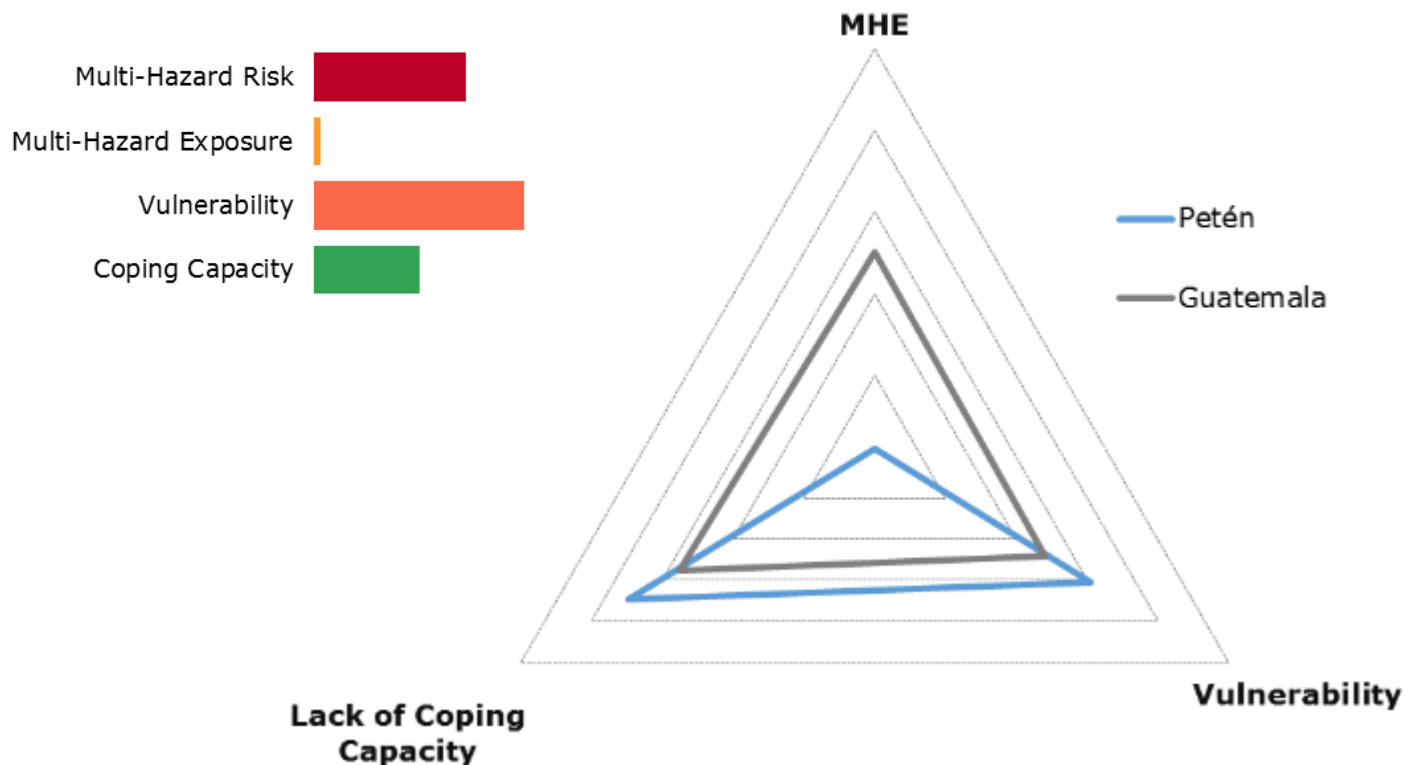


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low vulnerable health status

Ranked 17 of 22 departments, low health vulnerability could indicate a population that will be more resilient to the negative health impacts associated with major disaster events.



High environmental capacity

Ranked 6 of 22 departments, high environmental capacity indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.

Recommendations

01

Invest in infrastructure

Investing in transportation infrastructure will facilitate the distribution of goods and services before, during, and after a disaster event.

02

Monitor and manage population influx

Invest in a program to manage population influx into the region. Petén's vast (protected) resources have caused an increase in corporate and individual farming and logging operations. Population-control measures must be enacted to control the influx in personnel as the infrastructure is not designed to handle it.

03

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve resilience and decrease vulnerability.



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Guatemala: Quetzaltenango

**National Disaster Preparedness Baseline Assessment –
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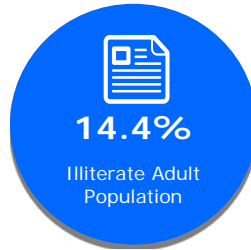
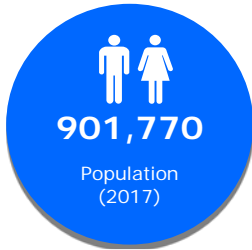
Department: Quetzaltenango



Department Capital: Quetzaltenango

Area: 1,951 km²

Quetzaltenango is located in the western highlands region of Guatemala. Quetzaltenango has a wide-ranging climate due to elevation changes, resulting in a variety of fruits and vegetables grown in the region. Some of the poorer populations in the higher altitudes migrate to the Pacific lowlands to work in the coffee, sugarcane, and cotton plantations.



Municipality

Quetzaltenango	164,486
Coatepeque	151,088
San Juan Ostuncalco	58,128
Cantel	48,484
Génova	46,041
Colomba	41,558
Olintepeque	39,989
San Carlos Sija	39,100
La Esperanza	35,381
Flores Costa Cuca	32,066
El Palmar	31,776
San Martín Sacatepéquez	28,965
Cabricán	28,935
Salcajá	20,413
Almolonga	19,976
Concepción Chiquirichapa	19,263
Huitán	17,209
San Mateo	13,987
Palestina de los Altos	13,552
Zunil	13,478
San Miguel Sigüilá	11,598
Cajolá	10,349

Population

164,486
151,088
58,128
48,484
46,041
41,558
39,989
39,100
35,381
32,066
31,776
28,965
28,935
20,413
19,976
19,263
17,209
13,987
13,552
13,478
11,598
10,349



Multi-Hazard Risk Rank: Moderate (14 of 22)

Lack of Resilience Rank: Very Low (19 of 22)

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Moderate		Very Low		Very High		Moderate		Very High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.505	14	0.410	19	0.694	4	0.440	14	0.619	1

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 4 of 22 Departments (Score: 0.694)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

820,882 People



Earthquake

100%

820,882 People



Volcano

60%

494,559 People



Flood

11%

88,050 People



Landslide

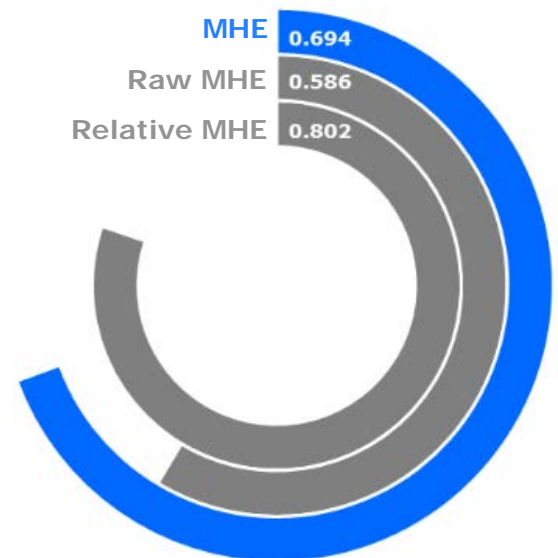
7%

59,968 People

Global Health Initiative

In places like Cajola, Quetzaltenango, the United States Global Health Initiative (GHI) is focusing on hunger and malnutrition. GHI is targeting Mayan women and children in the mostly indigenous Western Highlands, a mountainous area with a single maize harvest per year. The cornerstone of the strategy is reducing one of the highest rates of chronic malnutrition in the world. According to the United Nations Children's Fund, only Afghanistan and Yemen fare worse. Half of all Guatemalan children under five have stunted growth, and in the Western Highlands, it's seven out of 10.

*GHI targets chronic malnutrition in Guatemala, July 18, 2011
By Lomi Kriel*



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 14 of 22 Departments (Score: 0.440) Vulnerability in Quetzaltenango is primarily driven by Gender Inequality and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

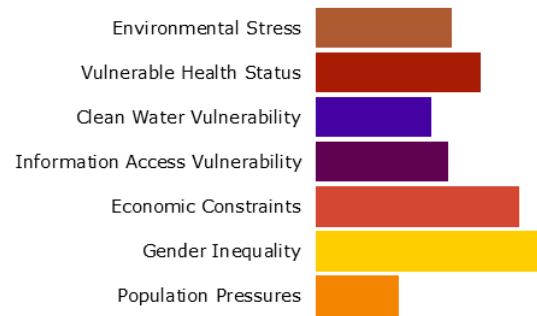









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	41.3% Province at Drought Risk	-0.14% Annual Forest Change					
	Vulnerable Health Status	29 Infant Mortality Rate	93.8 Maternal Mortality Ratio	1.0% Acute Malnutrition	1.5% Population Disabled	19.8 TB Incidence	11.0 Dengue Prevalence	9.0 Malaria Prevalence
	Clean Water Vulnerability	83.2% Households with Access to Improved Water	61.7% Households with Access to Improved Sanitation					
	Information Access Vulnerability	14.4% Adult Illiteracy	6.2 Average Years of Schooling	80.6% Primary School Enrollment	10.0% Households with Internet	47.8% Households with Cable TV	88.6% Households with Radio	51.7% Speak Indigenous Language
	Economic Constraints	0.79 Economic Dependency Ratio	56.0% Population in Poverty	0.58 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.04 Ratio of Female to Male Secondary Education Enrollment	0.26 Ratio of Female to Male Economic Activity				
	Population Pressures	2.9% Average Annual Population Change	1.2% Average Annual Urban Population Change	33.5% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 1 of 22 Departments (Score: 0.619) Quetzaltenango displays the country's highest Coping Capacity, due to very high Economic Capacity, Governance, and Infrastructure Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

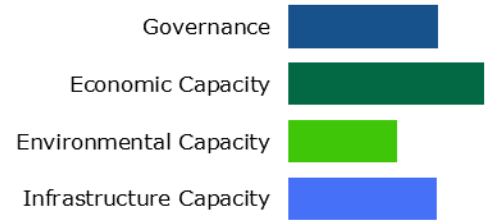


Table 4. Component scores for each Coping Capacity sub-component

	Governance	218.7 Crime Victims per 100K	33.34% Households with Garbage Collection				
	Economic Capacity	551.2 Remittances per Capita (USD)	24.2 Businesses per 1,000 persons	18,140 GDP per Capita (Quetzales)			
	Environmental Capacity	9.42% Protected Land	2.22% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	11.2 Hospital Beds per 10,000 Persons	8.11 Nurses per 10,000 Persons	7.89 Physicians per 10,000 Persons	14.2Km Average Distance to Nearest Hospital	85.4% Children Completed Immunization Schedule	
	Communications Capacity	10.1% Households with Access to Fixed Phone Line	82.1% Households with Access to Mobile Phone	99.1% Households with Access to Electricity			
	Transportation Capacity	15.8 km Average Distance to Nearest Port or Airport	35.0 km Total Length of Road per 100 km ² (area)				

⁴ **Coping Capacity:** The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 19 of 22 Departments (Score: 0.410)

Quetzaltenango's score and ranking are due to moderate Vulnerability combined with very high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Economic Constraints



Vulnerable Health Status

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 14 of 22 Departments (Score: 0.505)

Quetzaltenango's score and ranking are due to very high Multi-Hazard Exposure combined with moderate Vulnerability and very high Coping Capacity scores.

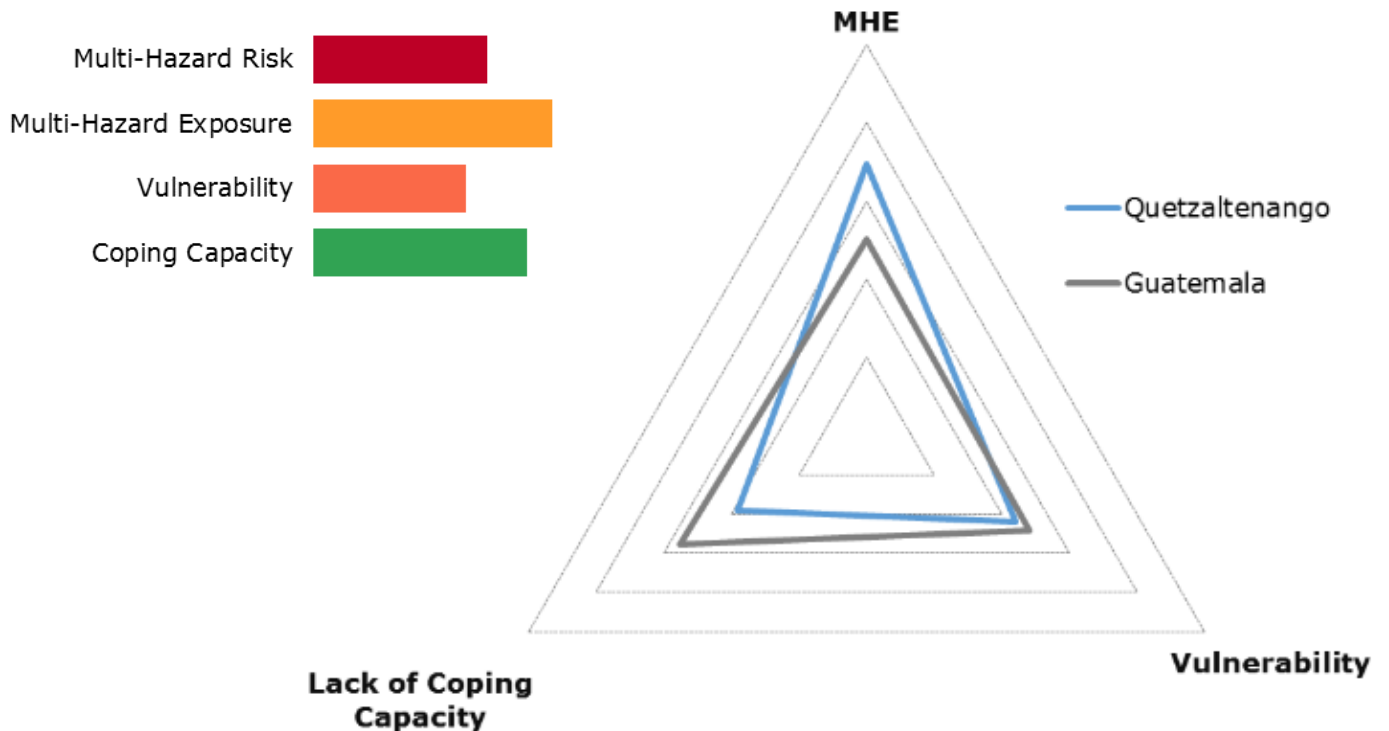


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Highest economic capacity

Ranked 1 of 22 departments, high economic capacity indicates that Quetzaltenango may be able to invest in additional mitigation and preparedness measures at the local and community level.



Low population pressures

Ranked 19 of 22 departments, limited population change allows disaster managers to form accurate evacuation, sheltering, and resource plans.



Low clean water vulnerability

Ranked 18 of 22 departments, low clean water vulnerability indicates that a population has access to high water quality and good containment systems, reducing susceptibility to disaster.

Recommendations

01

Provide opportunities for women

Public education and awareness programs, as well as increased business and political opportunities that focus on advancing the role of women in the workplace and society, will increase the resilience of vulnerable populations.

02

Increased economic opportunity

Provide education and government-backed incentivized business programs to promote business development and growth, ultimately decreasing vulnerability within the department.

03

Increase health education

Provide health-education services for the population, especially new mothers and other special needs populations.



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Guatemala: Quiché

Image: Google

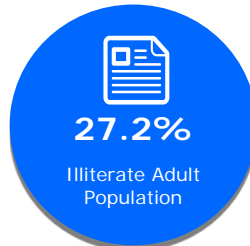
National Disaster Preparedness Baseline Assessment –
Department Profile

Department: Quiché



Department Capital: Santa Cruz del Quiché
 Area: 8,378 km²

Quiché is located in the northern part of Guatemala and is one of the more populous departments in the country. Almost 90% of the department's population is of Mayan descent.



Municipality

- Chichicastenango
- Santa Cruz del Quiché
- Ixcán
- Nebaj
- Joyabaj
- Uspantán
- Chajul
- Zacualpa
- Sacapulas
- Cunén
- Chicamán
- San Pedro Jocopilas
- San Juan Cotzal
- Chiché
- San Andrés Sajcabajá
- San Antonio Ilotenango
- San Bartolomé Jocotenango
- Canillá
- Chinique
- Pachalum
- Patzité

Population

- 169,162
- 125,415
- 118,886
- 102,519
- 93,352
- 80,528
- 65,282
- 61,927
- 52,792
- 41,816
- 41,646
- 32,443
- 31,794
- 31,431
- 28,814
- 22,614
- 19,400
- 14,075
- 12,169
- 9,237
- 6,564



Multi-Hazard Risk Rank: Very High (1 of 22)

Lack of Resilience Rank: Very High (3 of 22)

RVA Component Scores

Table 9. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very High		Very High		Moderate		Very High		Very Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.632	1	0.638	3	0.621	9	0.587	4	0.311	20

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 9 of 22 Departments (Score: 0.621)

Table 10. Estimated ambient population² exposed to each hazard



Cyclone

52%

442,754 People



Earthquake

100%

847,660 People



Volcano

74%

624,887 People



Flood

3%

27,518 People

Second-lowest flooding exposure in the country



Landslide

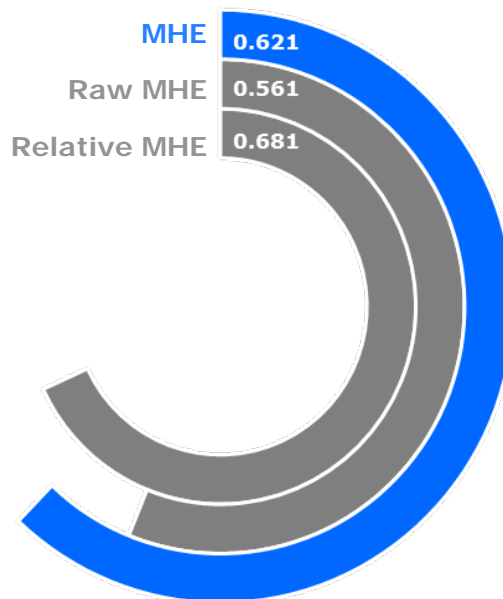
18%

154,076 People

The Open-Air Market of Chichicastenango

Market day traditionally takes place on Thursdays and Sundays. The marketers come down from the mountains and from other villages to the central plaza between the church of Santo Tomas and the chapel of the Calvary to sell their goods in an impressive native market that has hardly changed over the centuries. The florists congregate on the steps of the church, and the streets are flanked by weavings, masks carved from wood, and pieces of pottery among other handicrafts.

http://www.turansa.com/paginas/guatemala_departments/quiche.htm



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 4 of 22 Departments (Score: 0.587) Vulnerability in Quiché is primarily driven by Information Access Vulnerability, Gender Inequality, and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

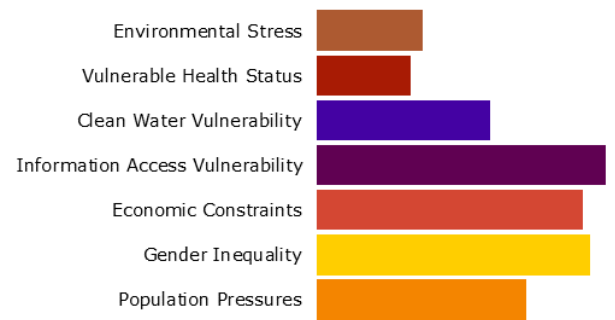









Table 11. Component scores for each Vulnerability sub-component

	Environmental Stress	35% Province at Drought Risk	0.68% Annual Forest Change					
	Vulnerable Health Status	25 Infant Mortality Rate	113.4 Maternal Mortality Rate	0.2% Acute Malnutrition	1.2% Population Disabled	7.6 TB Incidence	2.6 Dengue Prevalence	7.4 Malaria Prevalence
	Clean Water Vulnerability	83.3% Households with Access to Improved Water	38.5% Households with Access to Improved Sanitation					
	Information Access Vulnerability	27.2% Adult Illiteracy	4.5 Average Years of Schooling	71.8% Primary School Enrollment	4.7% Households with Internet	33.0% Households with Cable TV	69.8% Households with Radio	88.6% Speak Indigenous Language
	Economic Constraints	1.05 Economic Dependency Ratio	74.7% Population in Poverty	0.50 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.11 Ratio of Female to Male Secondary Education Enrollment	0.24 Ratio of Female to Male Economic Activity				
	Population Pressures	5.1% Average Annual Population Change	1.1% Average Annual Urban Population Change	49.9% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 20 of 22 Departments (Score: 0.311) Quiché displays a very low level of Coping Capacity, which is attributable to Economic Capacity and Transportation Infrastructure. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

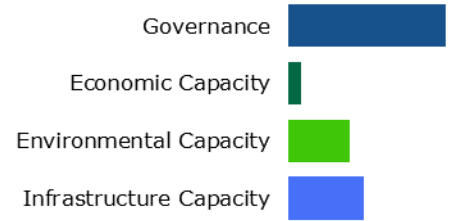


Table 12. Component scores for each Coping Capacity sub-component

	Governance	69.9 Crime Victims per 100K	18.6% Households with Garbage Collection			
	Economic Capacity	\$312.4 Remittances per Capita (USD)	3.3 Businesses per 1,000 persons	4,309.9 GDP per Capita (Quetzales)		
	Environmental Capacity	6.3% Protected Land	0.9% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	4.0 Hospital Beds per 10,000 Persons	2.0 Nurses per 10,000 Persons	2.2 Physicians per 10,000 Persons	28.2 km Average Distance to Nearest Hospital	98.3% Children Completed Immunization Schedule
	Communications Capacity	2.9% Households with Access to Fixed Phone Line	79.5% Households with Access to Mobile Phone	87.14% Households with Access to Electricity		
	Transportation Capacity	15.5 km Average Distance to Nearest Port or Airport	15.4 km Total Length of Road per 100 km ² (area)			

⁴ **Coping Capacity:** The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 3 of 22 Departments (Score: 0.638)

Quiché's score and ranking are due to very high Vulnerability combined with very low Coping Capacity scores.

Table 13. The 3 Thematic areas with the weakest relative scores



**Information
Access
Vulnerability**



**Economic
Capacity**



**Gender
Inequality**

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 1 of 22 Departments (Score: 0.632)

Quiché's score and ranking are due to moderate Multi-Hazard Exposure with very high Vulnerability and very low Coping Capacity scores.

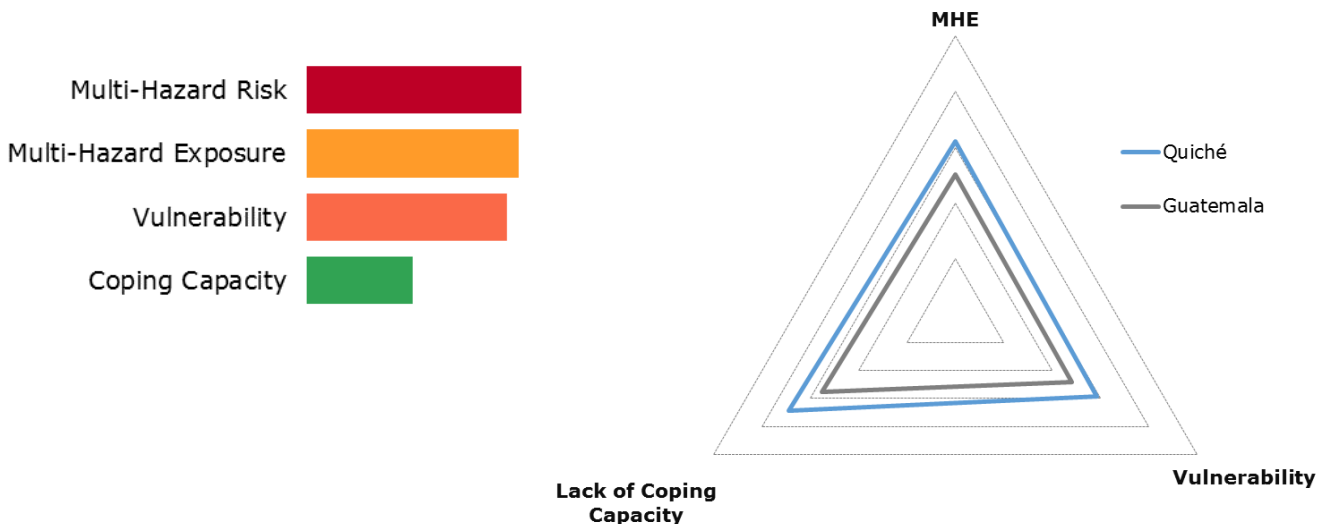


Figure 1. Department Multi-Hazard Risk Component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low vulnerable health status

Ranked 18 of 22 departments, low health vulnerability could indicate a population that will be more resilient to the negative health impacts associated with major disaster events.



High overall governance

Ranked 5 of 22 departments, high governance could facilitate the implementation of disaster management initiatives into departmental and municipal communities.

Recommendations

01

Increase business development

Invest in business development and education programs to boost economic capacity and increase the number of businesses and the likelihood of success of those businesses.

02

Invest in communication infrastructure

Invest in communication infrastructure to allow for easier access to information and education material, increasing literacy and situational awareness of the population.



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Guatemala: Retalhuleu

Image: Google

**National Disaster Preparedness Baseline Assessment –
Department Profile**

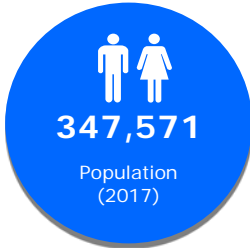
Department: Retalhuleu



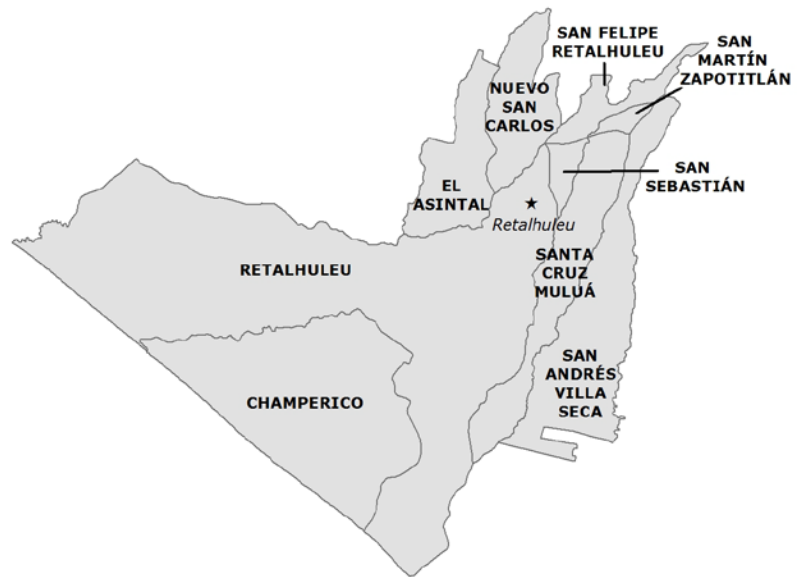
Department Capital: Retalhuleu

Area: 1,856 km²

Retalhuleu is located in southwestern Guatemala, bordering the Pacific Ocean. The capital city and its surrounding areas are home to coffee and sugarcane plantations, bee farms, livestock and numerous grains. The port of Champerico serves as the main port for Guatemala's shrimping fleet.



Municipality	Population
Retalhuleu	94,658
El Asintal	47,038
San Andrés Villa Seca	41,449
Champerico	40,827
Nuevo San Carlos	34,206
San Sebastián	31,932
San Felipe	29,566
Santa Cruz Muluá	14,525
San Martín Zapotitlán	13,370



**Multi-Hazard Risk Rank:
Moderate (9 of 22)**

**Lack of Resilience Rank:
Moderate (14 of 22)**

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Moderate		Moderate		High		Low		Moderate	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.546	9	0.497	14	0.643	8	0.411	18	0.418	12

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 8 of 22 Departments (Score: 0.643)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

314,872 People



Earthquake

100%

314,872 People



Volcano

98%

308,984 People



Flood

16%

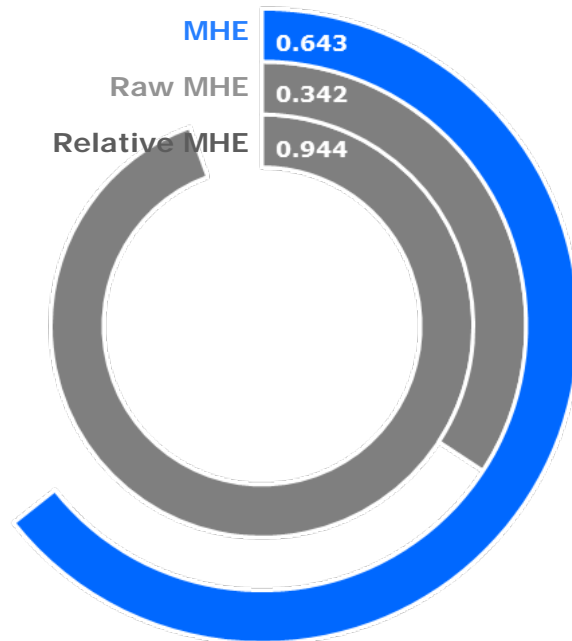
51,890 People



Landslide

<1%

398 People



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 18 of 22 Departments (Score: 0.411) Vulnerability in Retalhuleu is primarily driven by Clean Water Vulnerability and Vulnerable Health Status. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

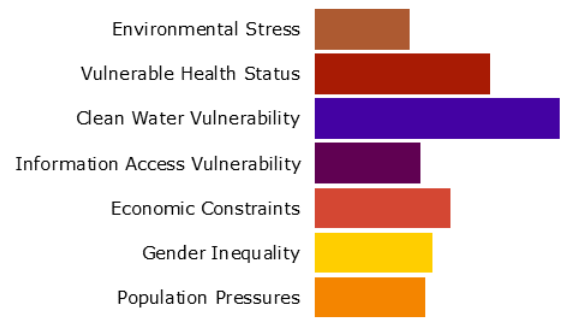









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	38.6% Province at Drought Risk	1.4% Annual Forest Change					
	Vulnerable Health Status	8 Infant Mortality Rate	57.3 Maternal Mortality Ratio	1.1% Acute Malnutrition	4.11% Population Disabled	16.9 TB Incidence	33.4 Dengue Prevalence	23.5 Malaria Prevalence
	Clean Water Vulnerability	57.0% Households with Access to Improved Water	43.9% Households with Access to Improved Sanitation					
	Information Access Vulnerability	5.9% Adult Illiteracy	5.7 Average Years of Schooling	86.1% Primary School Enrollment	6.0% Households with Internet	48.1% Households with Cable TV	78.0% Households with Radio	15.7% Speak Indigenous Language
	Economic Constraints	0.78 Economic Dependency Ratio	56.1% Population in Poverty	0.46 GINI Coefficient				
	Gender Inequality	33.3% Female Seats in Congress	0.09 Ratio of Female to Male Secondary Education Enrollment	0.08 Ratio of Female to Male Economic Activity				
	Population Pressures	2.9% Average Annual Population Change	0.1% Average Annual Urban Population Change	45.7% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 12 of 22 Departments (Score: 0.418) Retalhuleu displays a very low Environmental Capacity and moderate Governance and Infrastructure Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

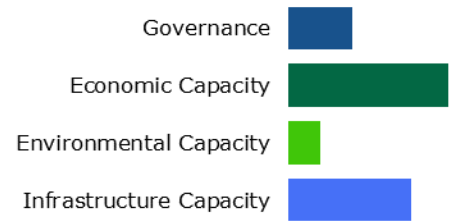


Table 4. Component scores for each Coping Capacity sub-component

	Governance	295.8 Crime Victims per 100K	7.0% Households with Garbage Collection				
	Economic Capacity	\$509.5 Remittances per Capita (USD)	45.9 Businesses per 1,000 persons	11,400 GDP per Capita (Quetzales)			
	Environmental Capacity	1.1% Protected Land	1.4% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	22.5 Hospital Beds per 10,000 Persons	4.0 Nurses per 10,000 Persons	2.8 Physicians per 10,000 Persons	21.3 km Average Distance to Nearest Hospital	86.1% Children Completed Immunization Schedule	
	Communications Capacity	6.0% Households with Access to Fixed Phone Line	86.0% Households with Access to Mobile Phone	94.8% Households with Access to Electricity			
	Transportation Capacity	19.7 km Average Distance to Nearest Port or Airport	19.8 km Total Length of Road per 100 km ² (area)				

⁴ **Coping Capacity:** The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 14 of 22 Departments (Score: 0.497)

Retalhuleu's score and ranking are due to low Vulnerability combined with moderate Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



**Clean Water
Vulnerability**



**Vulnerable
Health Status**



Governance

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 9 of 22 Departments (Score: 0.546)

Retalhuleu's score and ranking are due to high Multi-Hazard Exposure combined with low vulnerability and moderate Coping Capacity scores.

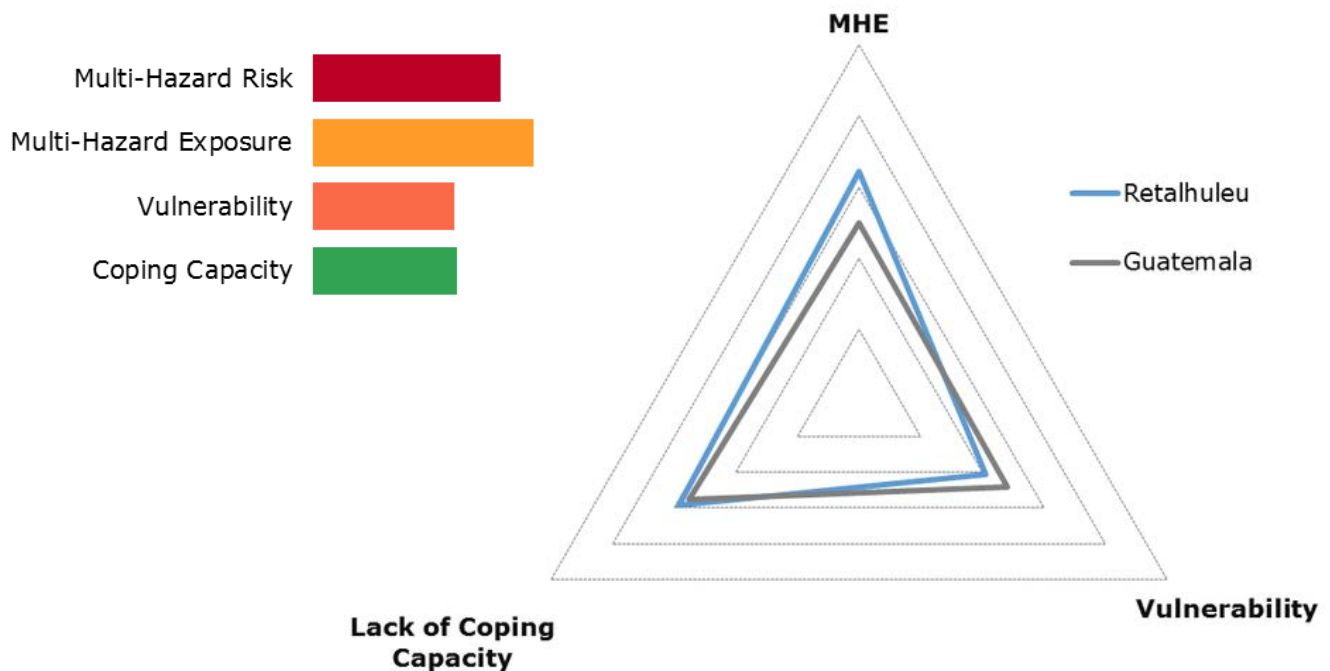


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low economic constraints

Ranked 18 of 22 departments, low economic constraints indicate an increased ability to invest in mitigation and preparedness measures at the individual, household, and department level.



Low gender inequality

Ranked 20 of 22 departments, low gender inequality indicates that vulnerable populations are more likely to have their needs met under 'normal' conditions and may be less susceptible during times of disaster.



Low environmental stress

Ranked 18 of 22 departments, low environmental stress indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.

Recommendations

01

Invest in water infrastructure

Increased availability of clean water sources and proper sanitation services will decrease vulnerability and allow for quicker recovery in the event of disaster.

02

Increased governance

Similar to clean water, investments in government services such as garbage collection and increased police presence can increase coping capacity by bringing stability to the department.

03

Increase health education

Provide health-education services for the population, especially new mothers and other special needs populations, to increase resilience.



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Guatemala: Sacatepéquez

**National Disaster Preparedness Baseline Assessment –
Department Profile**

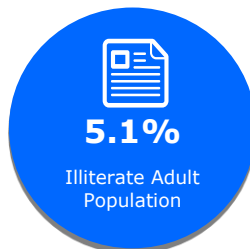
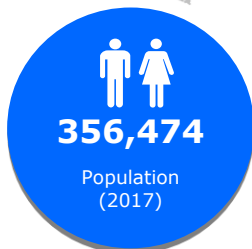
Department: Sacatepéquez



Department Capital: Antigua

Area: 464.9 km²

Sacatepéquez is to the northwest of Guatemala City and is a very mountainous area. The department is home to the most active volcanoes in Guatemala, including Acatengo, Volcán de Agua, and Volcán de Fuego.



Municipality

- Antigua Guatemala
- Sumpango
- Ciudad Vieja
- Alotenango
- Santiago Sacatepéquez
- San Lucas Sacatepéquez
- Jocotenango
- Santa Lucía Milpas Altas
- Santa María de Jesús
- Pastores
- San Miguel Dueñas
- Magdalena Milpas Altas
- Santo Domingo Xenacoj
- San Antonio Aguas Calientes
- San Bartolomé
- Santa Catarina Barahona

Population

- 46,534
- 41,789
- 40,676
- 33,824
- 32,656
- 28,221
- 21,242
- 17,433
- 17,347
- 16,439
- 12,218
- 11,933
- 11,313
- 10,771
- 10,422
- 3,654



Multi-Hazard Risk Rank: Low (18 of 22)

Lack of Resilience Rank: Very Low (22 of 22)

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Low		Very Low		High		Very Low		Very High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.467	18	0.359	22	0.682	6	0.332	21	0.613	2

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 6 of 22 Departments (Score: 0.682)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

325,051 People



Earthquake

100%

325,051 People



Volcano

100%

325,051 People



Flood

19%

62,918 People



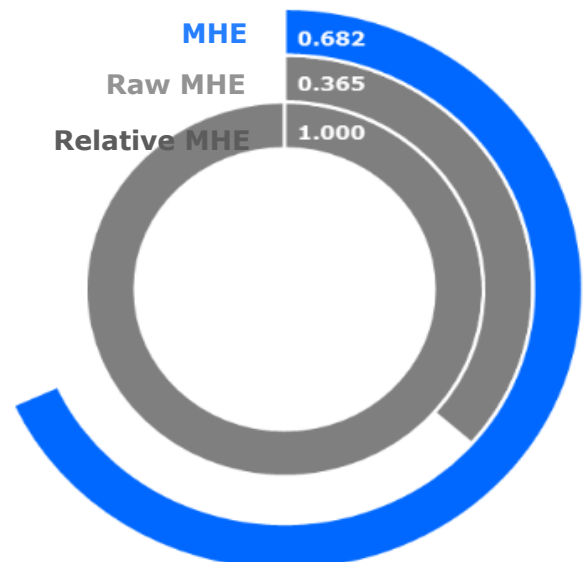
Landslide

10%

31,193 People

Volcán de Fuego

On the border of Sacatepéquez, Chimaltenango, and Escuintla departments, Volcán de Fuego is Central America's most active volcano. Fuego is almost constantly active at a low level with smoke visible emanating from its top daily. While large eruptions are rare, Sacatepéquez department's capital city of Antigua sitting in the volcano's shadow is constantly aware of the potential danger. The last major eruption was in 1974, but smaller eruptions have blanketed area towns and crops in ash as recently as 2017.



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 21 of 22 Departments (Score: 0.332) Vulnerability in Sacatepéquez is very low, but is influenced by Environmental Stress, Vulnerable Health Status, and Gender Inequality. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

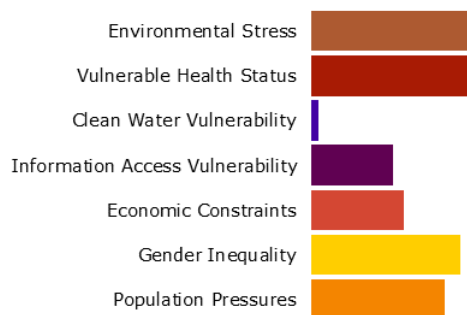









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	73.2% Province at Drought Risk	0.8% Annual Forest Change					
	Vulnerable Health Status	29 Infant Mortality Rate	64.3 Maternal Mortality Ratio	0.9% Acute Malnutrition	1.0% Population Disabled	9.5 TB Incidence	6.8 Dengue Prevalence	22.6 Malaria Prevalence
	Clean Water Vulnerability	94.9% Households with Access to Improved Water	89.9% Households with Access to Improved Sanitation					
	Information Access Vulnerability	5.1% Adult Illiteracy	6.7 Average Years of Schooling	84.7% Primary School Enrollment	10.4% Households with Internet	49.0% Households with Cable TV	84.8% Households with Radio	36.5% Speak Indigenous Language
	Economic Constraints	0.69 Economic Dependency Ratio	41.1% Population in Poverty	0.48 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.05 Ratio of Female to Male Secondary Education Enrollment	0.03 Ratio of Female to Male Economic Activity				
	Population Pressures	3.0% Average Annual Population Change	1.3% Average Annual Urban Population Change	46.1% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 2 of 22 Departments (Score: 0.613) Sacatepéquez displays a very high level of Coping Capacity, which is attributable to high Economic Capacity, Infrastructure Capacity, and Governance. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

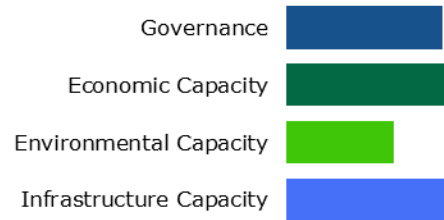









Table 4. Component scores for each Coping Capacity sub-component

	Governance	332.7 Crime Victims per 100K	41.3% Households with Garbage Collection			
	Economic Capacity	\$324.0 Remittances per Capita (USD)	20.1 Businesses per 1,000 persons	19,816 GDP per Capita (Quetzales)		
	Environmental Capacity	17.4% Protected Land	1.4% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	11.0 Hospital Beds per 10,000 Persons	6.7 Nurses per 10,000 Persons	7.6 Physicians per 10,000 Persons	8.4 km Average Distance to Nearest Hospital	91.2% Children Completed Immunization Schedule
	Communications Capacity	10.1% Households with Access to Fixed Phone Line	86.8% Households with Access to Mobile Phone	99.7% Households with Access to Electricity		
	Transportation Capacity	25.6 km Average Distance to Nearest Port or Airport	36.7 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 22 of 22 Departments (Score: 0.359)

Sacatepéquez's score and ranking are due to very low Vulnerability combined with very high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Vulnerable Health Status



Environmental Stress



Gender Inequality

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 18 of 22 Departments (Score: 0.467)

Sacatepéquez's score and ranking are due to high Multi-Hazard Exposure combined with very low Vulnerability and very high Coping Capacity scores.

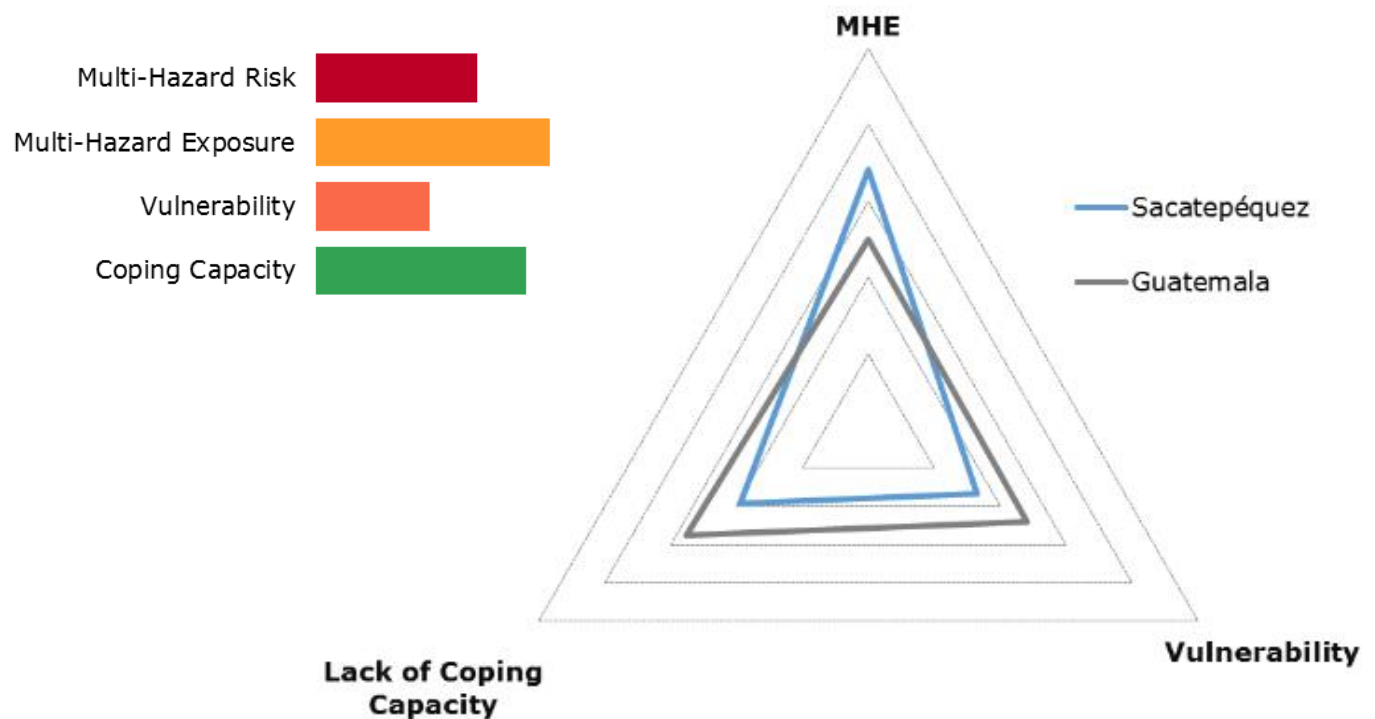


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest clean water vulnerability

Ranking 22 of 22 departments, low clean water vulnerability indicates that a population has access to high water quality and good containment systems, reducing susceptibility to disaster.



Low economic constraints

Ranking 20 of 22 departments, low economic constraints indicate an increased ability to invest in mitigation and preparedness measures at the individual, household, and department level.



High overall coping capacity

Ranking 2 of 22 departments, high coping capacity indicates the department's ability, using existing skills and resources, to face and manage adverse conditions, emergencies, or disasters.

Recommendations

01

Increase health education

Providing education programs to the public, especially young/expectant mothers and special needs populations, vulnerability can be decreased.

02

Increase environmental programs

Invest in environmental protection programs to preserve land and vegetation, increasing resiliency and coping capacity.

03

Provide opportunities for women

Public education and awareness programs that focus on increasing the role of women in the workplace and the society will improve resilience and decrease vulnerability.



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Guatemala: San Marcos

Image: Google

**National Disaster Preparedness Baseline Assessment –
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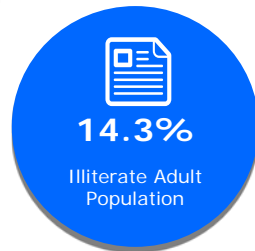
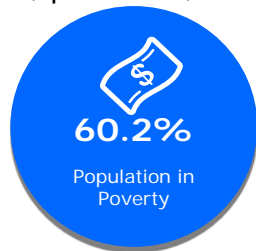
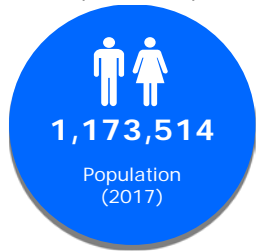
Department: San Marcos



Department Capital: San Marcos

Area: 2,397 km²

San Marcos is located in northwest Guatemala, bordering the Pacific Ocean to the west and Mexico to the north. The extreme range in altitude from the coast to the Tajumulco volcano – the highest peak in Central America – results in a large variety of crops, including apples, bananas, beans, cacao, coffee, maize, oats, plantains, rice, and potatoes.



Municipality

Malacatán	123,926
Tacaná	83,988
San Pedro Sacatepéquez	74,611
Comitancillo	70,758
Tajumulco	64,880
Concepción Tutuapa	63,454
San Pablo	61,765
San Marcos	60,383
Ocós	50,835
El Tumbador	44,667
Ayutla	43,602
Nuevo Progreso	42,498
Catarina	40,165
San Miguel Ixtahuacán	39,997
Tejutla	35,827
Ixchiguán	33,372
Pajapita	28,545
El Quetzal	25,697
San Antonio Sacatepéquez	23,055
San José Ojetenam	21,398
Sipacapa	20,588
El Rodeo	18,395
San Cristóbal Cucho	18,013
Sibinal	17,750
San Rafael Pie de La Cuesta	16,986
La Reforma	15,944

Population

123,926
83,988
74,611
70,758
64,880
63,454
61,765
60,383
50,835
44,667
43,602
42,498
40,165
39,997
35,827
33,372
28,545
25,697
23,055
21,398
20,588
18,395
18,013
17,750
16,986
15,944



Multi-Hazard Risk Rank: High (5 of 22)	Lack of Resilience Rank: High (7 of 22)
--	---

RVA Component Scores

Table 19. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
High		High		Moderate		High		Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.576	5	0.565	7	0.598	10	0.519	8	0.389	18

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 10 of 22 Departments (Score: 0.598)

Table 302. Estimated ambient population² exposed to each hazard



Cyclone

100%

1,041,378 People



Earthquake

100%

1,041,378 People



Volcano

1.6%

16,662 People



Flood

8%

79,607 People



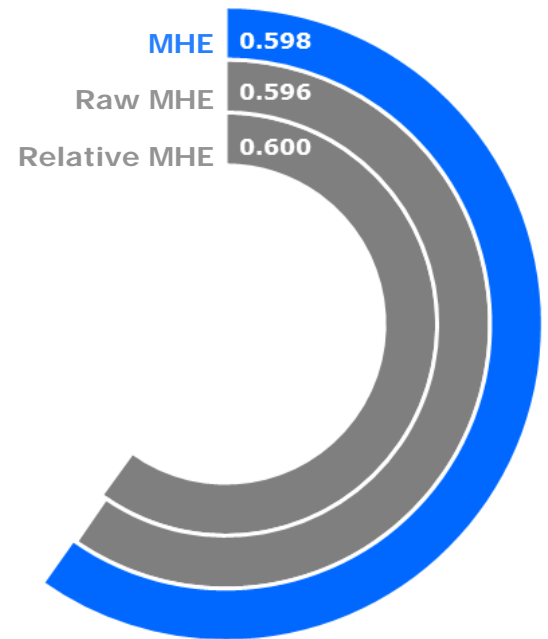
Landslide

17%

180,963 People

Magnitude 7.4 Earthquake

In November 2012, a 7.4M earthquake struck off the coast of Guatemala, causing shaking as far away as Mexico City and San Salvador. In San Marcos, one of the hardest hit areas, over 30 houses collapsed, communications were severed, and landslides blocked main transportation routes in and out of the town. Additionally, a school collapsed, injuring eight people. It was the worst earthquake to hit Guatemala since 1976.



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 8 of 22 Departments (Score: 0.519) Vulnerability in San Marcos is primarily driven by Economic Constraints, Clean Water Access Vulnerability, and Gender Inequality. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

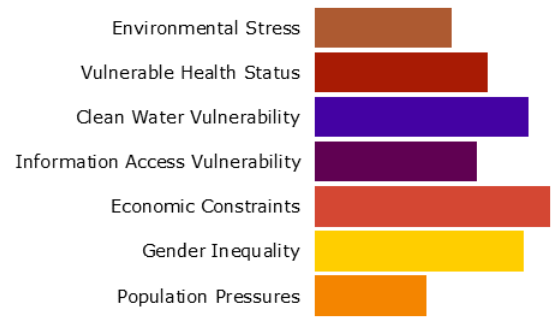









Table 31. Component scores for each Vulnerability sub-component

	Environmental Stress	42.0% Province at Drought Risk	-0.16% Annual Forest Change					
	Vulnerable Health Status	29 Infant Mortality Rate	157.9 Maternal Mortality Ratio	0.7% Acute Malnutrition	1.2% Population Disabled	22.4 TB Incidence	17.5 Dengue Prevalence	7.0 Malaria Prevalence
	Clean Water Vulnerability	73% Households with Access to Improved Water	35.6% Households with Access to Improved Sanitation					
	Information Access Vulnerability	14.3% Adult Illiteracy	5.0 Average Years of Schooling	87.4% Primary School Enrollment	4.4% Households with Internet	26.0% Households with Cable TV	77.5% Households with Radio	30.3% Speak Indigenous Language
	Economic Constraints	0.81 Economic Dependency Ratio	60.2% Population in Poverty	0.61 GINI Coefficient				
	Gender Inequality	11.1% Female Seats in Congress	.537 Ratio of Female to Male Secondary Education Enrollment	0.196 Ratio of Female to Male Economic Activity				
	Population Pressures	3.2% Average Annual Population Change	2.21% Average Annual Urban Population Change	35.4% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 18 of 22 Departments (Score: 0.389) San Marcos displays a low level of Coping Capacity, which is attributable to Economic Capacity and Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

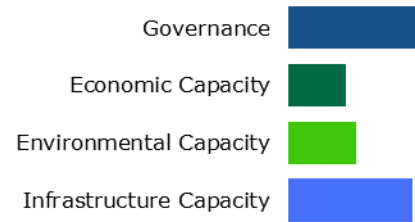


Table 42. Component scores for each Coping Capacity sub-component

	Governance	96.8 Crime Victims per 100K	11.8% Households with Garbage Collection				
	Economic Capacity	\$523.1 Remittances per Capita (USD)	5.7 Businesses per 1,000 Persons	6,282 GDP per Capita (Quetzales)			
	Environmental Capacity	3.6% Protected Land	1.7% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	13.9 Hospital Beds per 10,000 Persons	2.3 Nurses per 10,000 Persons	2.9 Physicians per 10,000 Persons	20.4 km Average Distance to Nearest Hospital	91.7% Children Completed Immunization Schedule	
	Communications Capacity	7.0% Households with Access to Fixed Phone Line	75.6% Households with Access to Mobile Phone	96.4% Households with Access to Electricity			
	Transportation Capacity	22.6 km Average Distance to Nearest Port or Airport	33.9 km Total Length of Road per 100 km ² (area)				

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 7 of 22 Departments (Score: 0.565)

San Marcos' score and ranking are due to high Vulnerability combined with low Coping Capacity scores.

Table 53. The 3 thematic areas with the weakest relative scores



Economic Constraints



Economic Capacity



Clean Water Vulnerability

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 5 of 22 Departments (Score: 0.576)

San Marcos' score and ranking are due to high Vulnerability, moderate Multi-Hazard Exposure combined with low Coping Capacity scores.

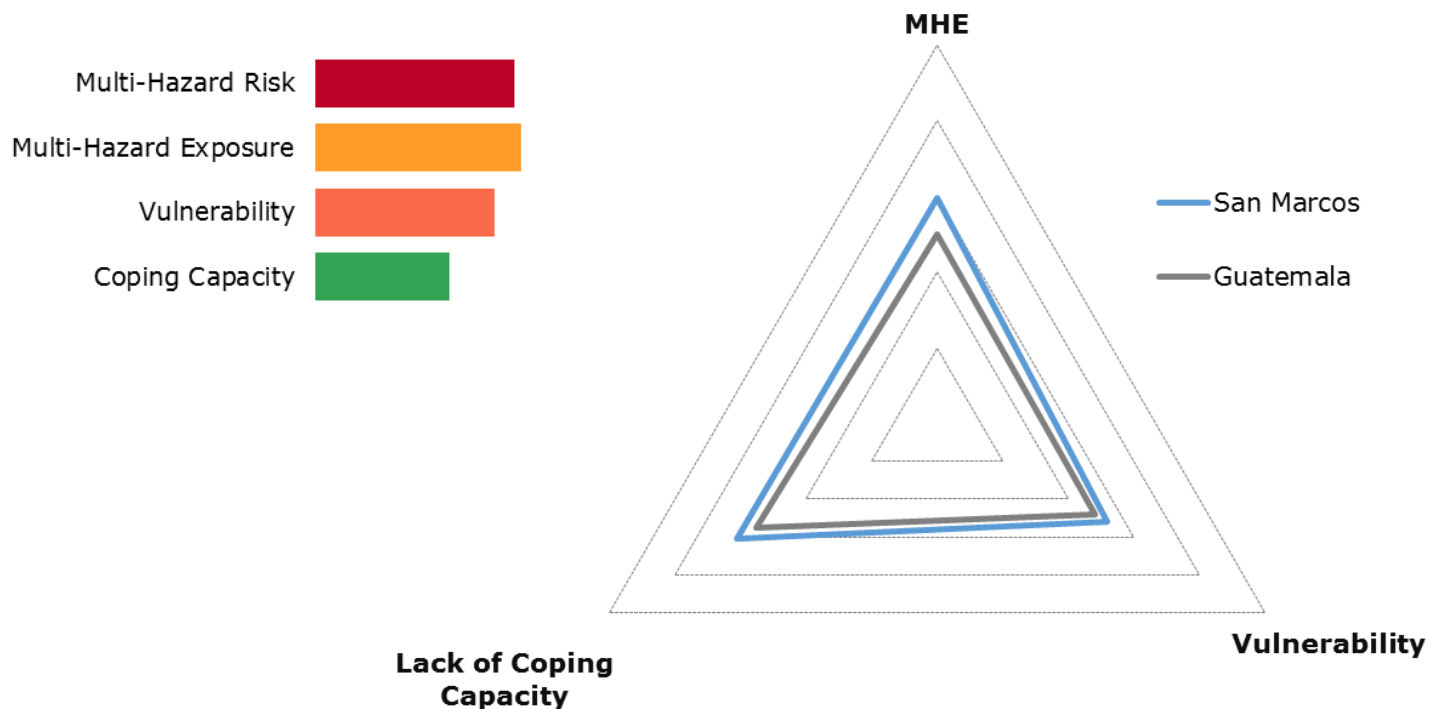


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low population pressures

Ranked 16 of 22 departments, limited population change allows disaster managers to form accurate evacuation, sheltering, and resource plans.

Recommendations

01

Invest in business development

Provide education and opportunities for business development, increasing economic capacity.

02

Increase water and sanitation services

Invest in public water and waste facilities to increase water quality and access and reduce the spread of disease.



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Guatemala: Santa Rosa

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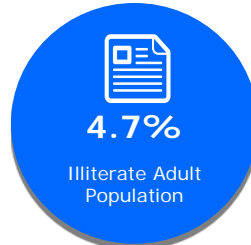
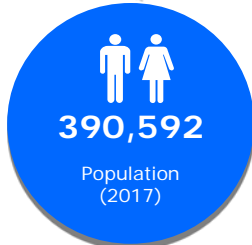
Department: Santa Rosa



Department Capital: Cuilapa

Area: 2,295 km²

Santa Rosa is in southern Guatemala, bordering the Pacific Ocean, and is characterized by a variety of climates. Agricultural products include livestock and coffee. The department is known for its cheeses and butters.



Municipality	Population
Chiquimulilla	51,564
Barberena	50,562
Cuilapa	48,147
Nueva Santa Rosa	34,588
Pueblo Nuevo Viñas	27,592
Oratorio	27,225
Casillas	26,504
Taxisco	23,827
Santa María Ixhuatán	22,483
Santa Rosa de Lima	20,201
Guazacapán	16,188
San Rafael Las Flores	15,627
Santa Cruz Naranjo	15,008
San Juan Tecuaco	11,078



Multi-Hazard Risk Rank: Low (16 of 22)

Lack of Resilience Rank: Low (16 of 22)

RVA Component Scores

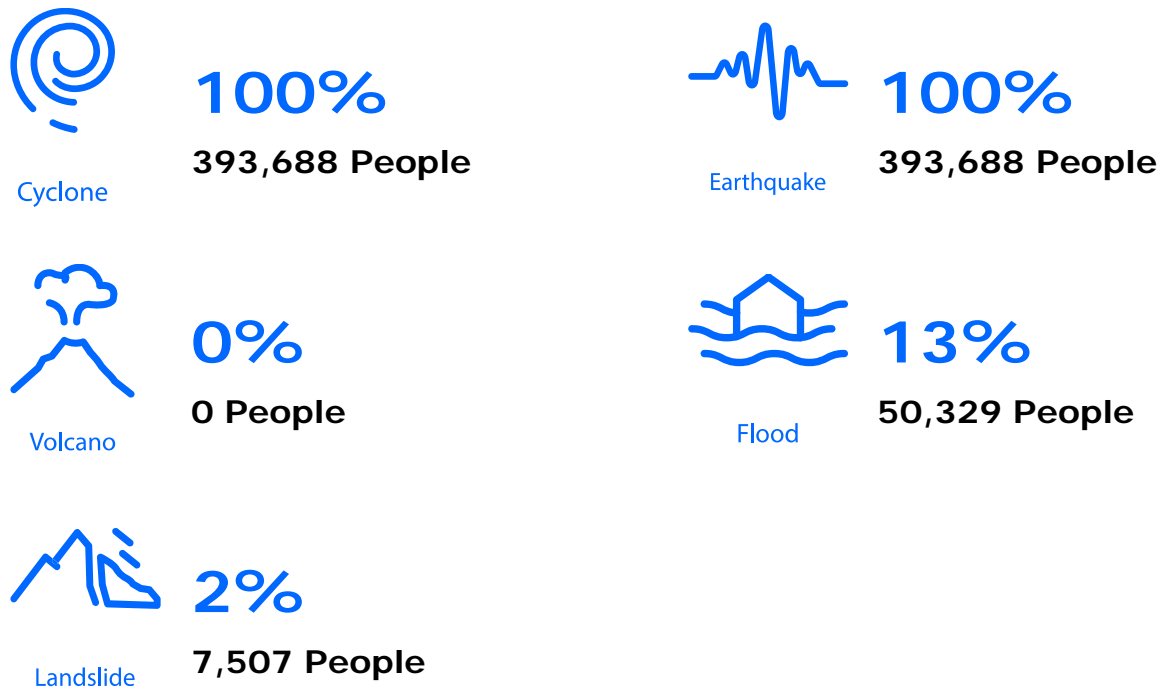
Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Low		Low		Moderate		Very Low		Moderate	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.469	16	0.492	16	0.425	14	0.397	19	0.414	13

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 14 of 22 Departments (Score: 0.425)

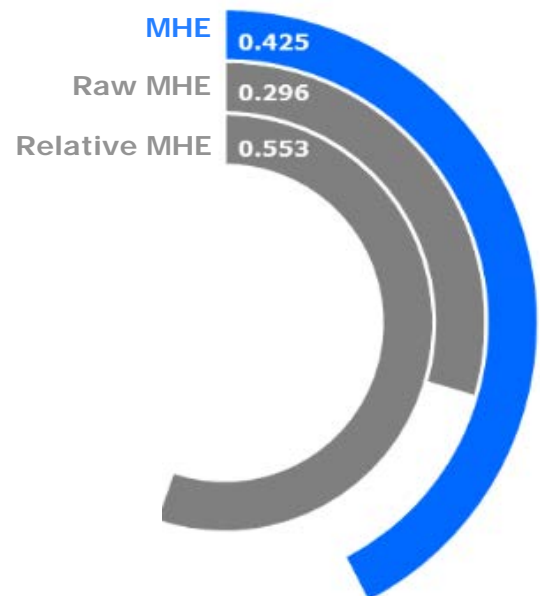
Table 2. Estimated ambient population² exposed to each hazard



A String of Disasters

In August and September 2011, Santa Rosa suffered a string of natural disasters devastating the region. Rainfall 40% above normal in August, according to INSIVUMEH, caused the San Juan River to overflow its banks and created avalanches and landslides cutting off villages and killing four residents. In September, six earthquakes struck Guatemala ranging from 4.5 to 5.8 magnitude on the Richter scale. The southeastern area of Santa Rosa was the most impacted by earthquakes, with almost 5,000 people affected and more than 1,200 houses damaged. CONRED set up nine refuge centers for 3,500 people.

<http://www.americasquarterly.org/node/2926>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 19 of 22 Departments (Score: 0.397) Vulnerability in Santa Rosa is influenced by Clean Water Vulnerability and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

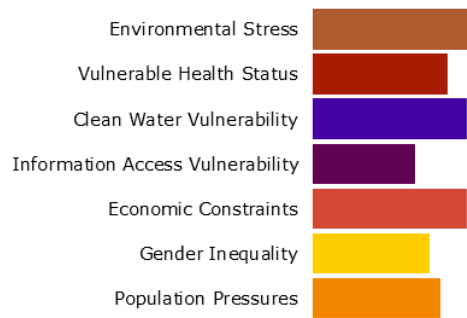









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	26.4% Province at Drought Risk	-2.5% Annual Forest Change					
	Vulnerable Health Status	18 Infant Mortality Rate	46.2 Maternal Mortality Ratio	0.6% Acute Malnutrition	2.8% Population Disabled	12.0 TB Incidence	7.6 Dengue Prevalence	20.7 Malaria Prevalence
	Clean Water Vulnerability	69.0% Households with Access to Improved Water	64.8% Households with Access to Improved Sanitation					
	Information Access Vulnerability	4.7% Adult Illiteracy	5.4 Average Years of Schooling	87.3% Primary School Enrollment	3.3% Households with Internet	43.0% Households with Cable TV	80.3% Households with Radio	3.0% Speak Indigenous Language
	Economic Constraints	0.81 Economic Dependency Ratio	54.3% Population in Poverty	0.48 GINI Coefficient				
	Gender Inequality	33.3% Female Seats in Congress	0.02 Ratio of Female to Male Secondary Education Enrollment	0.21 Ratio of Female to Male Economic Activity				
	Population Pressures	1.8% Average Annual Population Change	0.1% Average Annual Urban Population Change	58.7% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 13 of 22 Departments (Score: 0.414) Santa Rosa displays a moderate level of Coping Capacity, which is attributable to low Governance and Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

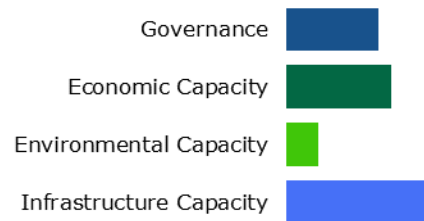


Table 4. Component scores for each Coping Capacity sub-component

	Governance	275.3 Crime Victims per 100K	20.6% Households with Garbage Collection			
	Economic Capacity	\$517.8 Remittances per Capita (USD)	10.7 Businesses per 1,000 Persons	11,760 GDP per Capita (Quetzales)		
	Environmental Capacity	3.0% Protected Land	0.5% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	12.9 Hospital Beds per 10,000 Persons	6.1 Nurses per 10,000 Persons	6.5 Physicians per 10,000 Persons	25.2 km Average Distance to Nearest Hospital	85% Children Completed Immunization Schedule
	Communications Capacity	4.1% Households with Access to Fixed Phone Line	88.5% Households with Access to Mobile Phone	97.1% Households with Access to Electricity		
	Transportation Capacity	31.2 km Average Distance to Nearest Port or Airport	23.2 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 16 of 22 Departments (Score: 0.492)

Santa Rosa's score and ranking are due to very low Vulnerability combined with moderate Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



**Clean Water
Vulnerability**



**Economic
Capacity**



**Economic
Constraints**

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 16 of 22 Departments (Score: 0.469)

Santa Rosa's score and ranking are due to moderate Multi-Hazard Exposure combined with very low Vulnerability and moderate Coping Capacity scores.

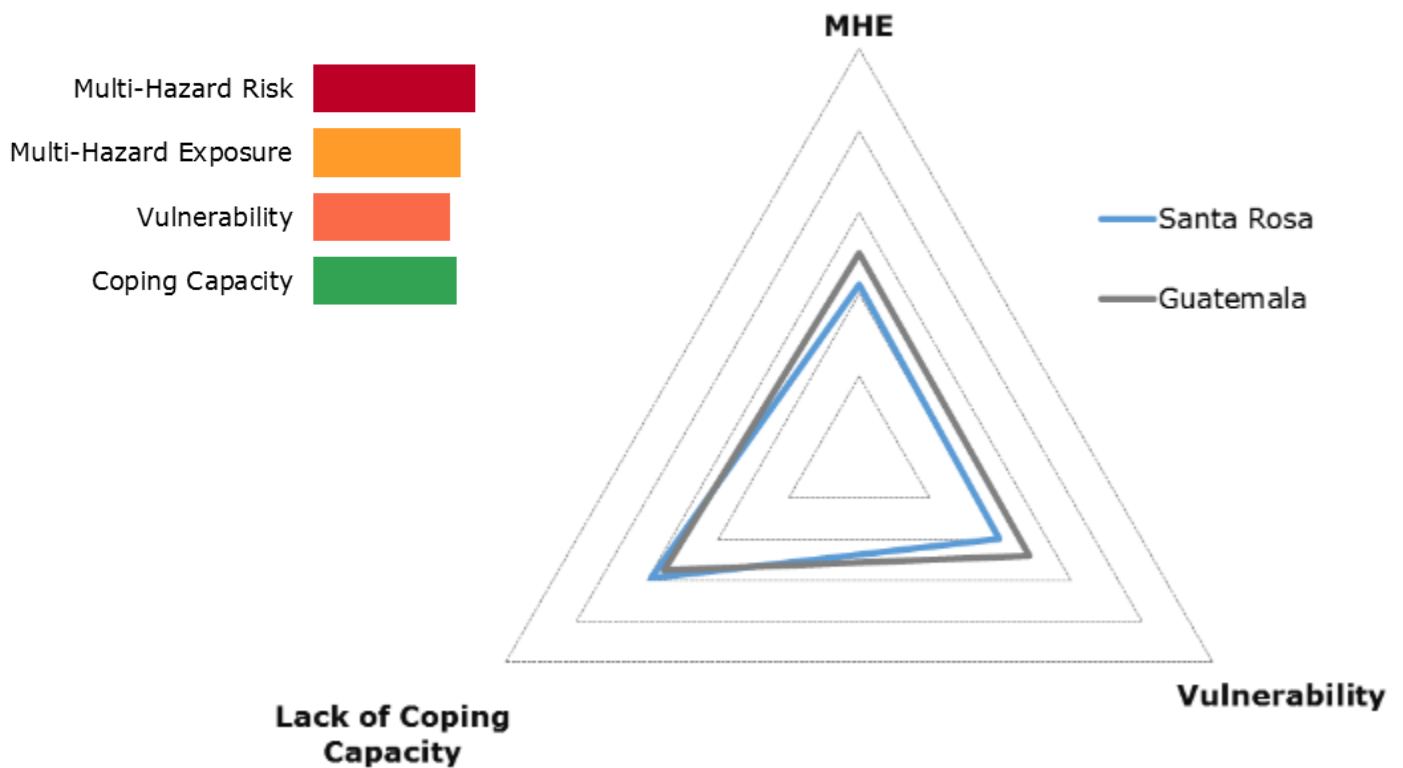


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Low gender inequality

Ranked 21 of 22 departments, low gender inequality indicates that vulnerable populations are more likely to have their needs met under 'normal' conditions and may be less susceptible during times of disaster.



High information access

High information access indicates that the population has an increased ability to access and comprehend disaster-related information before, during, and after events.



High health care capacity

Ranked 3 of 22 departments, high health care capacity indicates that the population will have access to healthcare services before, during, and after a disaster.

Recommendations

01

Provide business opportunities and education

Institute programs to provide independent economic opportunities in the department. Increased economic capacity will decrease vulnerability in emergencies.

02

Increase government water services

Investments in public water and sewer facilities will help to decrease vulnerability and increase access to clean water during a disaster.



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Guatemala: Sololá

Image: Google

**National Disaster Preparedness Baseline Assessment –
Department Profile**

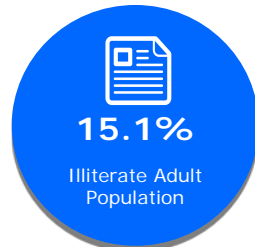
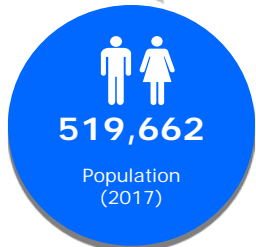
Department: Sololá



Department Capital: Sololá

Area: 1,061 km²

Sololá is located in western Guatemala. Lake Atitlán, known as one of the most beautiful lakes in the world, is located in the department and is Guatemala's most popular tourist attraction.



Municipality

- Sololá
- Nahualá
- Santa Catalina Ixtahuacán
- Santiago Atitlán
- San Lucas Tolimán
- Santa Lucía Utatlán
- Panajachel
- San Andres Semetabaj
- San Antonio Palopó
- San Juan La Laguna
- San Pedro La Laguna
- Santa Clara La Laguna
- Santa Cruz La Laguna
- San Pablo La Laguna
- Concepción
- Santa Catarina Palopó
- San José Chacayá
- San Marcos La Laguna
- Santa María Visitación

Population

- 149,951
- 71,785
- 53,322
- 52,046
- 33,986
- 26,944
- 20,387
- 14,649
- 14,289
- 12,247
- 12,210
- 11,189
- 9,027
- 8,174
- 7,809
- 7,363
- 5,871
- 5,546
- 2,868



- 1) SANTA MARÍA VISITACIÓN
- 2) SANTA CLARALA LAGUNA
- 3) SANTA PABLO LA LAGUNA
- 4) SANTA MARCOS LA LAGUNA
- 5) SANTA CRUZ LA LAGUNA
- 6) SAN JOSÉ CHACAYÁ
- 7) PANAJACHEL
- 8) SANTA CATARIN PALAPÓ

**Multi-Hazard Risk Rank:
High (7 of 22)**

**Lack of Resilience Rank:
Low (17 of 22)**

RVA Component Scores

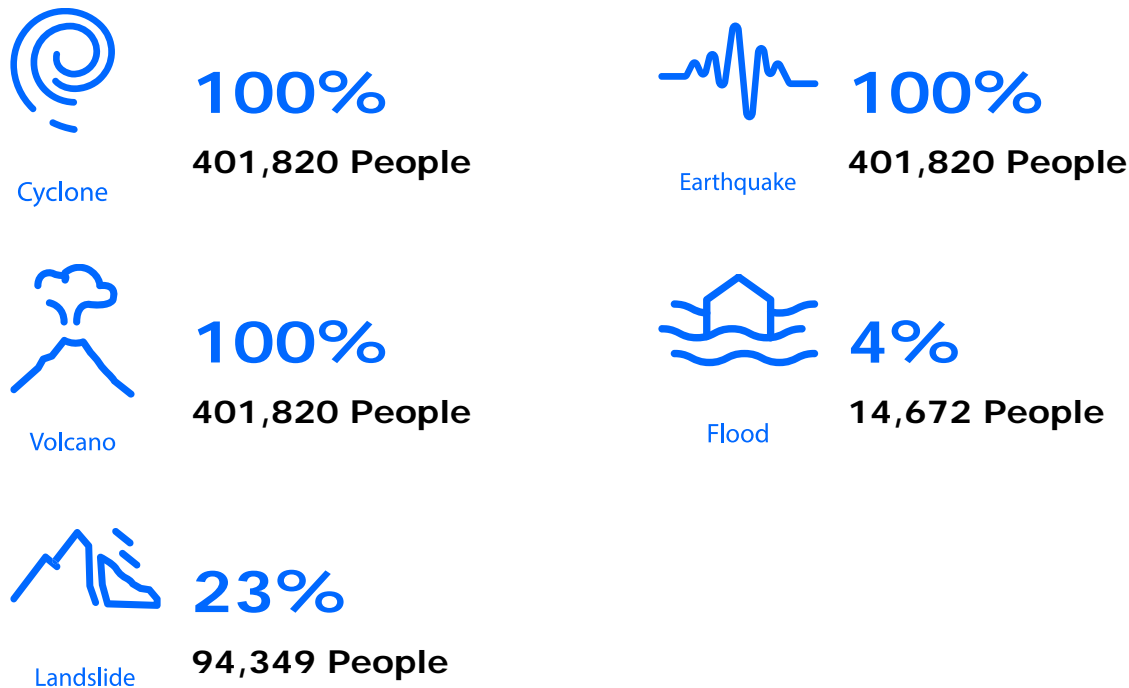
Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
High		Low		Very High		Moderate		High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.560	7	0.486	17	0.709	3	0.488	10	0.515	6

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 3 of 22 Departments (Score: 0.709)

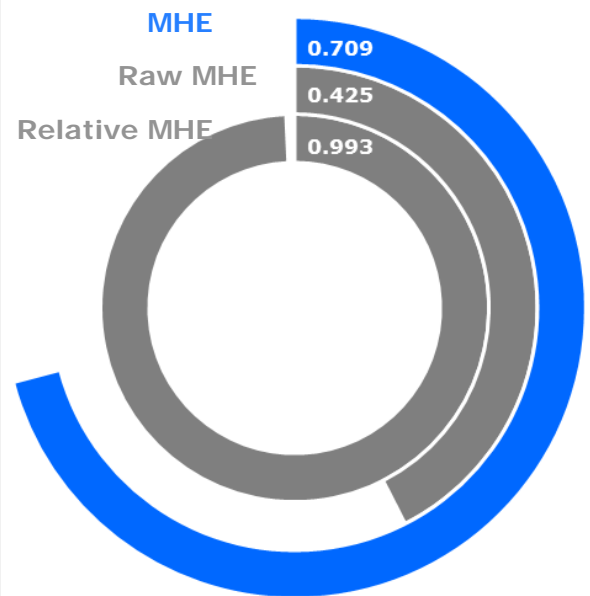
Table 40. Estimated ambient population² exposed to each hazard



Trócaire began working with AMI (Integrated Medical Attention) San Lucas, a local NGO based in the department of Sololá, in 2009 on disaster preparedness and response in one of Guatemala’s most high-risk regions. The communities of Sololá have endured multiple natural disasters, including Hurricane Stan in 2005, Ágata in 2010, the 12A storm of 2011, and the earthquake of November 2012, which caused massive landslides and the destruction of many homes.

Trócaire and AMI San Lucas have supported the community of Paquip, Sololá, in the formation, training, and accreditation of its COLRED (Local Coordinator for the Reduction of Disasters). The COLRED has 10 members, three of whom are women. Each member has a specific responsibility, for example: coordinator of the refuge, first aid, search and rescue leader. Members have participated in first aid and search and rescue trainings, and have been provided with equipment, such as helmets, radios, flashlights, a stretcher, and first-aid kits.

<https://www.trocaire.org/sites/default/files/pdfs/whatwedo/trocaire-guatemala-disaster-risk-reduction.pdf>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 10 of 22 Departments (Score: 0.488) Vulnerability in Sololá is primarily driven by Information Access Vulnerability and Population Pressures. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

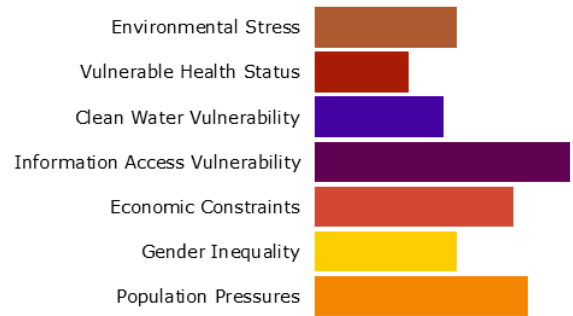









Table 21. Component scores for each Vulnerability sub-component

	Environmental Stress	44.1% Province at Drought Risk	-0.2% Annual Forest Change					
	Vulnerable Health Status	22 Infant Mortality Rate	21.1 Maternal Mortality Ratio	0.0% Acute Malnutrition	5.7% Population Disabled	5.4 TB Incidence	4.4 Dengue Prevalence	16.2 Malaria Prevalence
	Clean Water Vulnerability	97.1% Households with Access to Improved Water	38.4% Households with Access to Improved Sanitation					
	Information Access Vulnerability	15.1% Adult Illiteracy	4.8 Average Years of Schooling	66.8% Primary School Enrollment	3.4% Households with Internet	46.7% Households with Cable TV	75.8% Households with Radio	96.5% Speak Indigenous Language
	Economic Constraints	0.94 Economic Dependency Ratio	80.9% Population in Poverty	0.40 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.04 Ratio of Female to Male Secondary Education Enrollment	0.03 Ratio of Female to Male Economic Activity				
	Population Pressures	4.6% Average Annual Population Change	0.9% Average Annual Urban Population Change	54.9% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 6 of 22 Departments (Score: 0.515) Sololá displays a high level of Coping Capacity, which is attributable to high Governance and Environmental Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

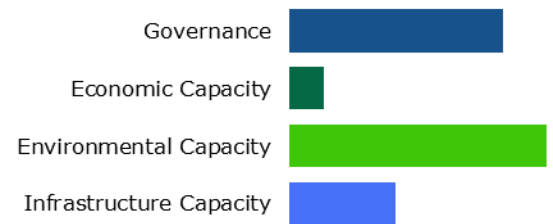


Table 3. Component scores for each Coping Capacity sub-component

	Governance	78.9 Crime Victims per 100K	33.9% Households with Garbage Collection			
	Economic Capacity	\$259.1 Remittances per Capita (USD)	6.6 Businesses per 1,000 Persons	7,074.9 GDP per Capita (Quetzales)		
	Environmental Capacity	78.2% Protected Land	5.2% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	1.7 Hospital Beds per 10,000 Persons	2.2 Nurses per 10,000 Persons	3.3 Physicians per 10,000 Persons	13.8 km Average Distance to Nearest Hospital	81.9% Children Completed Immunization Schedule
	Communications Capacity	3.3% Households with Access to Fixed Phone Line	72.6% Households with Access to Mobile Phone	98.3% Households with Access to Electricity		
	Transportation Capacity	16.8 km Average Distance to Nearest Port or Airport	48.7 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 17 of 22 Departments (Score: 0.486)

Sololá's score and ranking are due to moderate Vulnerability combined with high Coping Capacity scores.

Table 4. The 3 thematic areas with the weakest relative scores



**Information
Access
Vulnerability**



**Population
Pressures**



**Health Care
Capacity**

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 7 of 22 Departments (Score: 0.560)

Sololá's score and ranking are due to very high Multi-Hazard Exposure combined with moderate Vulnerability and high Coping Capacity scores.

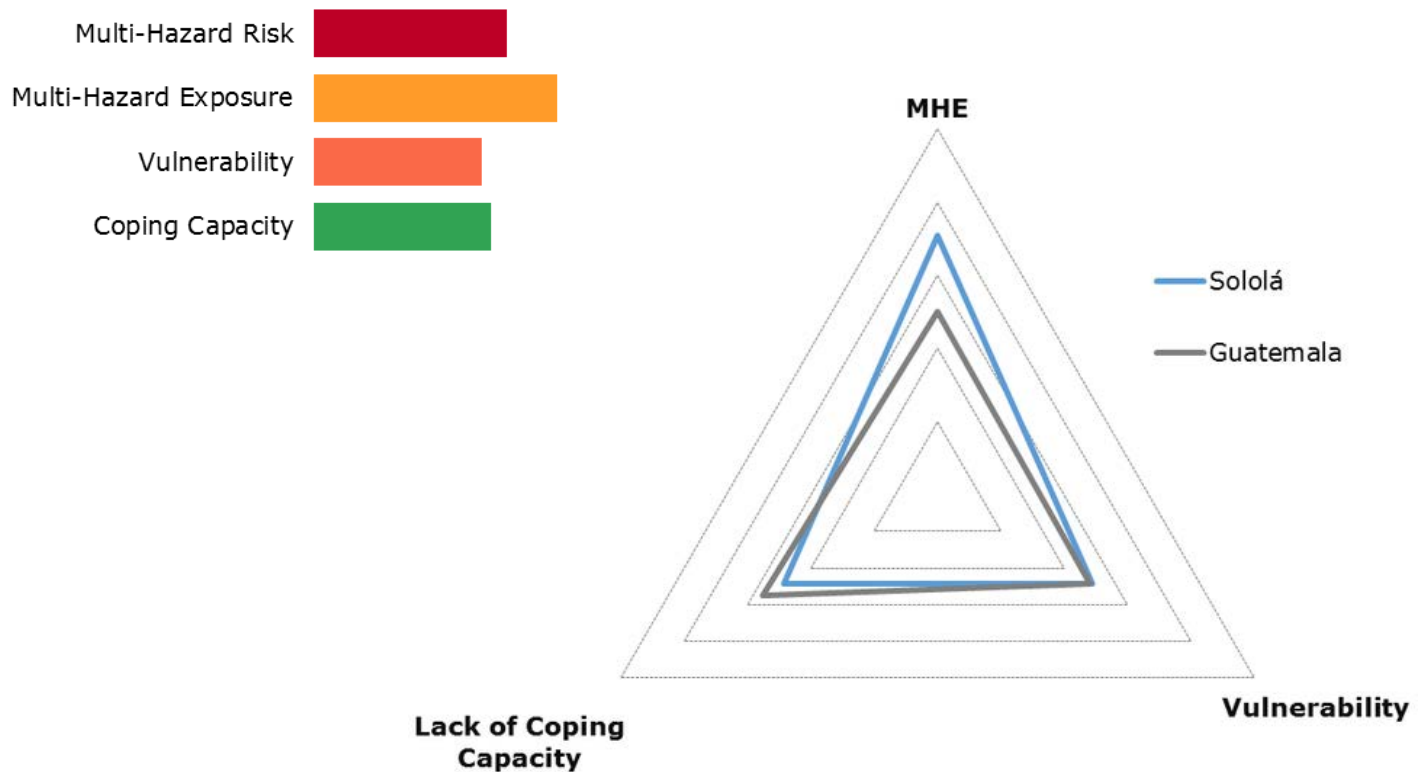


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Highest overall governance

Ranked 1 of 22 departments, high governance could facilitate the implementation of disaster management initiatives into departmental and municipal communities.



Highest environmental capacity

Ranked 1 of 22 departments, high environmental capacity indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.



Lowest vulnerable health status

Ranked 22 of 22 departments, low health vulnerability could indicate a population that will be more resilient to the negative health impacts associated with major disaster events.

Recommendations

01

Invest in communication infrastructure

Invest in communication infrastructure to support coordinated action among local, municipal, and regional actors.

02

Increase health education and access

Provide increased access to healthcare services through construction of facilities, incentive programs for doctors and nurses to practice in remote areas, and general health-education programs for the population. Increasing healthcare access facilitates access to vital resources before, during, and after a disaster event.

03

Reduce population pressure

Rapid population changes are difficult to plan for, and can destabilize social, economic, and environmental systems. Analyze trends in the department to determine potential population changes and increase the update frequency of plans and SOPS to accommodate the changes.



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Guatemala: Suchitepéquez

**National Disaster Preparedness Baseline Assessment –
Department Profile**

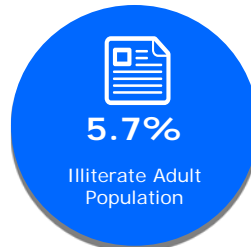
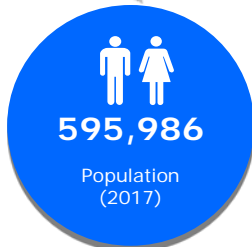
Department: Suchitepéquez



Department Capital: Mazatenango

Area: 2,510 km²

Suchitepéquez is in southwestern Guatemala, with a small coastline along the Pacific Ocean. The main agricultural crops in the department are sugar cane, rubber, corn, beans, bananas, and plantains.



Municipality

- Mazatenango
- Cuyotenango
- San Antonio Suchitepéquez
- Chicacao
- Patulul
- Santo Domingo Suchitepéquez
- Santa Bárbara
- San Bernardino
- Samayac
- Río Bravo
- San Pablo Jocopilas
- San Francisco Zapotitlán
- Santo Tomás la Unión
- San Lorenzo
- San Juan Bautista
- Pueblo Nuevo
- San José el Idolo
- San Miguel Panán
- Zunilito
- San Gabriel

Population

- 109,774
- 59,360
- 56,784
- 56,018
- 48,025
- 38,015
- 26,628
- 24,258
- 23,670
- 22,462
- 22,001
- 21,225
- 13,649
- 13,607
- 12,631
- 12,490
- 10,109
- 9,176
- 9,060
- 7,047



Multi-Hazard Risk Rank: Moderate (11 of 22)

Lack of Resilience Rank: Moderate (10 of 22)

RVA Component Scores

Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Moderate		Moderate		Moderate		Low		Low	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.539	11	0.519	10	0.580	11	0.434	15	0.397	15

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 11 of 22 Departments (Score: 0.580)

Table 2. Estimated ambient population² exposed to each hazard



Cyclone

100%

**527,143
People**



Earthquake

100%

**527,143
People**



Volcano

40%

**210,952
People**



Flood

18%

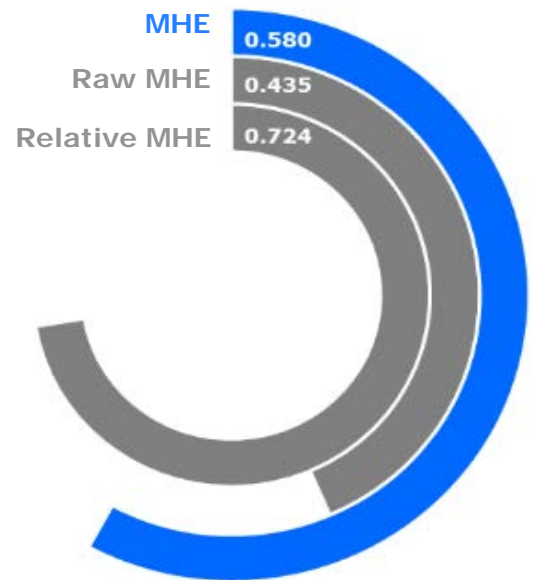
**95,065
People**



Landslide

<1%

**1,700
People**



Chocolá

Chocolá dates to the late Pre-Classic (400BC to 200AD) period. It has over 100 structures, including large palaces, a ball field, and pottery workshops. Over 3,000 objects have been found, including pots, altars, sculpted monuments, and very delicate manufacturing ceramic figurines. Suchitepéquez produces some of the best quality cocoa in the country. Mayan culture used cocoa nuts as currency. This knowledge has led to the conjecture that an early development of such magnitude and complexity was due to the intensive cultivation of cocoa for its commercialization. A small museum dedicated to the history of cocoa is located in the modern village of Chocolá.

http://www.turansa.com/paginas/guatemala_departments/suchitepequez.htm

¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 15 of 22 Departments (Score: 0.434) Vulnerability in Suchitepéquez is primarily driven by Vulnerable Health Status, Gender Inequality, and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

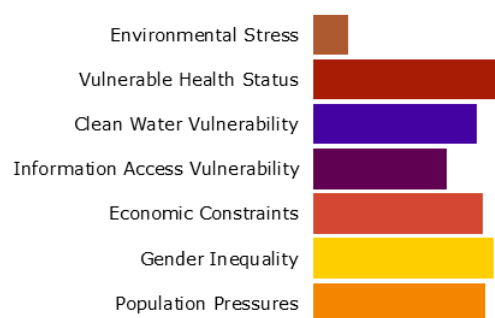









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	20.8% Province at Drought Risk	2.7% Annual Forest Change					
	Vulnerable Health Status	28 Infant Mortality Rate	94.1 Maternal Mortality Ratio	1.1% Acute Malnutrition	2.3% Population Disabled	41.2 TB Incidence	12.8 Dengue Prevalence	13.8 Malaria Prevalence
	Clean Water Vulnerability	69.3% Households with Access to Improved Water	60.7% Households with Access to Improved Sanitation					
	Information Access Vulnerability	5.67% Adult Illiteracy	5.0 Average Years of Schooling	82.8% Primary School Enrollment	4.3% Households with Internet	50.1% Households with Cable TV	75.8% Households with Radio	23.4% Speak Indigenous Language
	Economic Constraints	0.82 Economic Dependency Ratio	63.8% Population in Poverty	0.47 GINI Coefficient				
	Gender Inequality	20.0% Female Seats in Congress	0.11 Ratio of Female to Male Secondary Education Enrollment	0.12 Ratio of Female to Male Economic Activity				
	Population Pressures	3.1% Average Annual Population Change	0.3% Average Annual Urban Population Change	59.0% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 15 of 22 Departments (Score: 0.397) Suchitepéquez displays a very low level of Coping Capacity, which is attributable to very low Governance, Economic Capacity, and Infrastructure Capacity. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

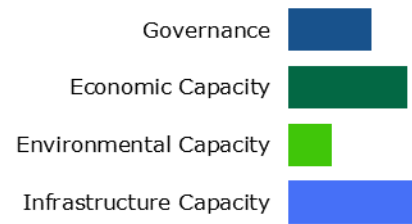









Table 4. Component scores for each Coping Capacity sub-component

	Governance	304.9 Crime Victims per 100K	10.1% Households with Garbage Collection				
	Economic Capacity	\$462.4 Remittances per Capita (USD)	13.6 Businesses per 1,000 persons	13,367 GDP per Capita (Quetzales)			
	Environmental Capacity	5.5% Protected Land	0.3% Reforested Area				
	Infrastructure Capacity						
	Health Care Capacity	10.3 Hospital Beds per 10,000 Persons	7.1 Nurses per 10,000 Persons	4.1 Physicians per 10,000 Persons	19.3 km Average Distance to Nearest Hospital	90.3% Children Completed Immunization Schedule	
	Communications Capacity	3.9% Households with Access to Fixed Phone Line	83.3% Households with Access to Mobile Phone	90.7% Households with Access to Electricity			
	Transportation Capacity	27.7 km Average Distance to Nearest Port or Airport	23.9 km Total Length of Road per 100 km ² (area)				

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 10 of 22 Departments (Score: 0.519)

Suchitepéquez's score and ranking are due to low Vulnerability combined with low Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Vulnerable Health Status



Governance



Gender Inequality

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 11 of 22 Departments (Score: 0.539)

Suchitepéquez's score and ranking are due to low Vulnerability, moderate Multi-Hazard Exposure, and low Coping Capacity scores.

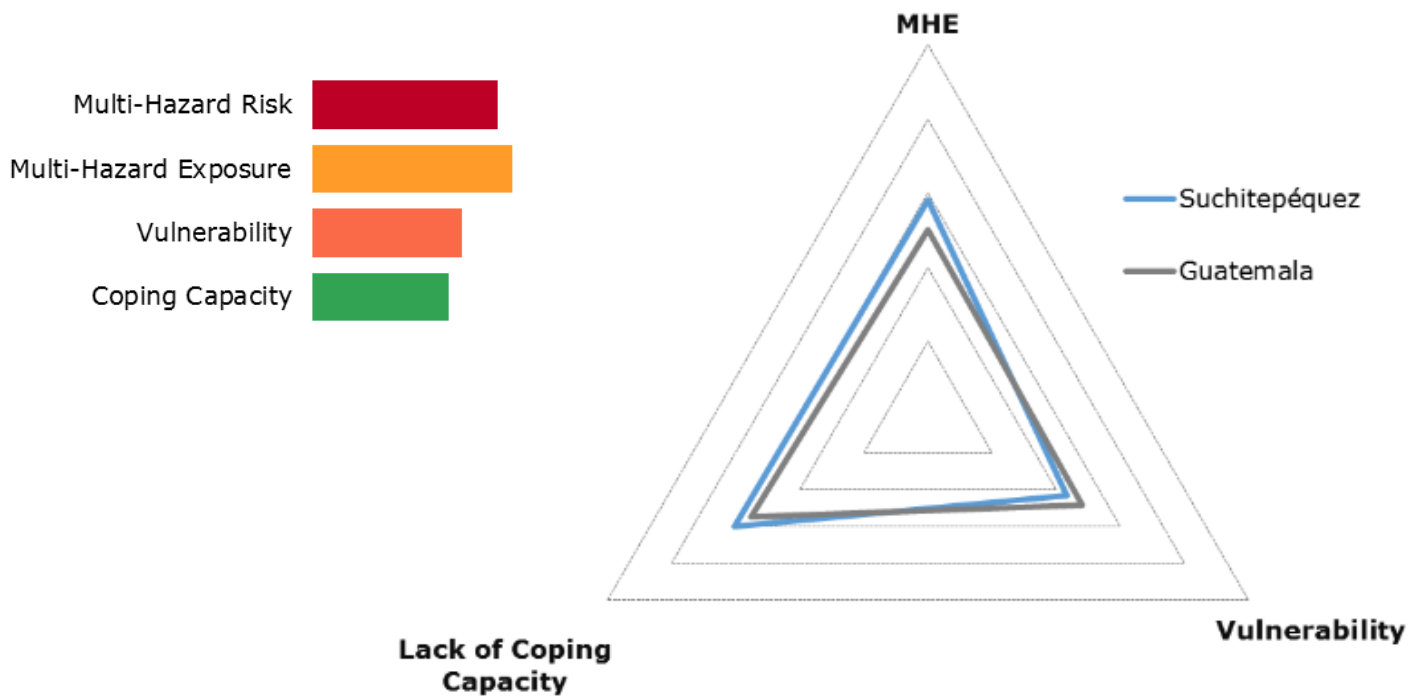


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest environmental stress

Ranked 22 of 22 departments, low environmental stress indicates that natural resources and agriculture will be more resilient to the effects of a disaster and may recover faster.



High information access

High information access indicates that the population has an increased ability to access and comprehend disaster-related information before, during, and after events.

Recommendations

01

Invest access to health care

Through education, facility construction, and traveling care programs, increase the citizens' ability to access health-related information and physical care, especially for new/expectant mothers and young children.

02

Increase government services

Investments in public services such as garbage collection, fire, and police will increase coping capacity and the department's ability to handle crises.

03

Provide opportunities for women

Public education and awareness programs, as well as increased business and political opportunities that focus on advancing the role of women in the workplace and the society, will improve resilience and decrease vulnerability.



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Guatemala: Totonicapán

Image: Google

**National Disaster Preparedness Baseline Assessment –
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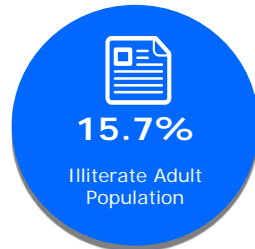
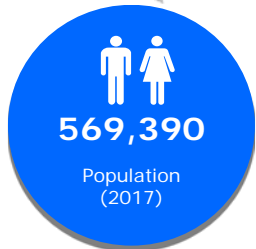
Department: Totonicapán



Department Capital: Totonicapán

Area: 1,061 km²

Totonicapán is located in the western highlands region of Guatemala and is known for its extensive highland oak-pine forests. Approximately 97% of the population identify as indigenous of Mayan descent.



Municipality

- Totonicapán
- Momostenango
- San Francisco el Alto
- Santa María Chiquimula
- San Andrés Xecul
- San Cristóbal Totonicapán
- Santa Lucía la Reforma
- San Bartolo

Population

- 152,893
- 149,840
- 75,771
- 54,997
- 42,101
- 41,306
- 27,217
- 25,263

**Multi-Hazard Risk Rank:
Very High (2 of 22)**

**Lack of Resilience Rank:
Very High (4 of 22)**



RVA Component Scores

Table 14. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very High		Very High		High		Very High		Moderate	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.629	2	0.601	4	0.684	5	0.640	2	0.438	11

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 5 of 22 Departments (Score: 0.684)

Table 25. Estimated ambient population² exposed to each hazard



100%

435,130 People

Cyclone



100%

435,130 People

Earthquake



94%

410,304 People

Volcano



5%

20,673 People

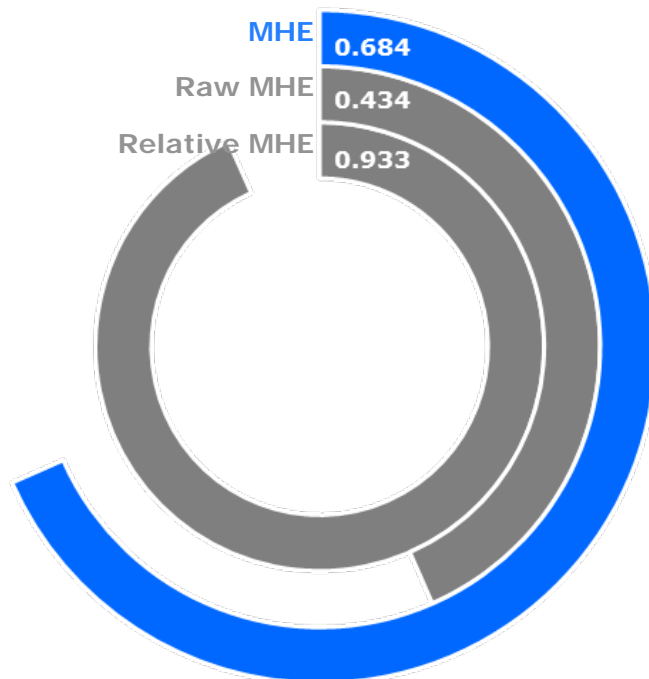
Flood



13%

55,892 People

Landslide



Promoting Alternative Crops in Rural Communities of Totonicapán

In June 2016, the Inter-American Development Bank completed a project promoting alternative crop development in Guatemala. Traditionally, communities produced the same, uncompetitive crops, resulting in malnutrition and minimal income. The program, at a cost of just under \$750,000 USD, was designed to improve living conditions of small, rural agricultural communities in Guatemala.

¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 2 of 22 Departments (Score: 0.64) Vulnerability in Totonicapán is primarily driven by Information Access Vulnerability, Environmental Stress, and Economic Constraints. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

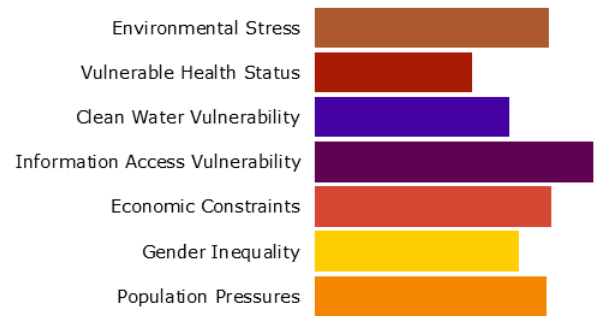









Table 16. Component scores for each vulnerability sub-component

	Environmental Stress	99.9% Province at Drought Risk	-0.04% Annual Forest Change					
	Vulnerable Health Status	35 Infant Mortality Rate	153.5 Maternal Mortality Ratio	0.5% Acute Malnutrition	3.6% Population Disabled	2.6 TB Incidence	8.2 Dengue Prevalence	14.9 Malaria Prevalence
	Clean Water Vulnerability	83.2% Households with Access to Improved Water	30.1% Households with Access to Improved Sanitation					
	Information Access Vulnerability	15.7% Adult Illiteracy	4.6 Average Years of Schooling	62.7% Primary School Enrollment	2.0% Households with Internet	29.0% Households with Cable TV	78.9% Households with Radio	97.0% Speak Indigenous Language
	Economic Constraints	1.01 Economic Dependency Ratio	77.5% Population in Poverty	0.45 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.004 Ratio of Female to Male Secondary Education Enrollment	0.28 Ratio of Female to Male Economic Activity				
	Population Pressures	4.5% Average Annual Population Change	3.15% Average Annual Urban Population Change	52.0% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 11 of 22 Departments (Score: 0.438) Totonicapán displays a moderate level of Coping Capacity, which is attributable to low Economic Capacity and Transportation Infrastructure. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Coping Capacity score.

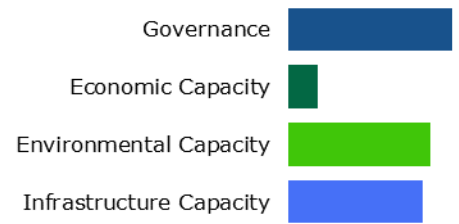









Table 3. Component Scores for each Coping Capacity Sub-component

	Governance	70.7 Crime Victims per 100K	14.4% Households with Garbage Collection			
	Economic Capacity	\$255.3 Remittances per Capita (USD)	6.71 Businesses per 1,000 persons	6,255 GDP per Capita (Quetzales)		
	Environmental Capacity	12.32% Protected Land	3.17% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	1.07 Hospital Beds per 10,000 Persons	1.87 Nurses per 10,000 Persons	2.73 Physicians per 10,000 Persons	33.2 Km Average Distance to Nearest Hospital	84.5% Children Completed Immunization Schedule
	Communications Capacity	6.3% Households with Access to Fixed Phone Line	76.6% Households with Access to Mobile Phone	98.2% Households with Access to Electricity		
	Transportation Capacity	19.6 km Average Distance to Nearest Port or Airport	54.9 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 4 of 22 Departments (Score: 0.601)

Totonicapán's score and ranking are due to very high Vulnerability combined with moderate Coping Capacity scores.

Table 18. The 3 thematic areas with the weakest relative scores



**Information
Access
Vulnerability**



**Economic
Capacity**



**Economic
Constraints**

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 2 of 22 Departments (Score: 0.629)

Totonicapán's score and ranking are due to high Multi-Hazard Exposure combined with very high Vulnerability and moderate Coping Capacity scores.

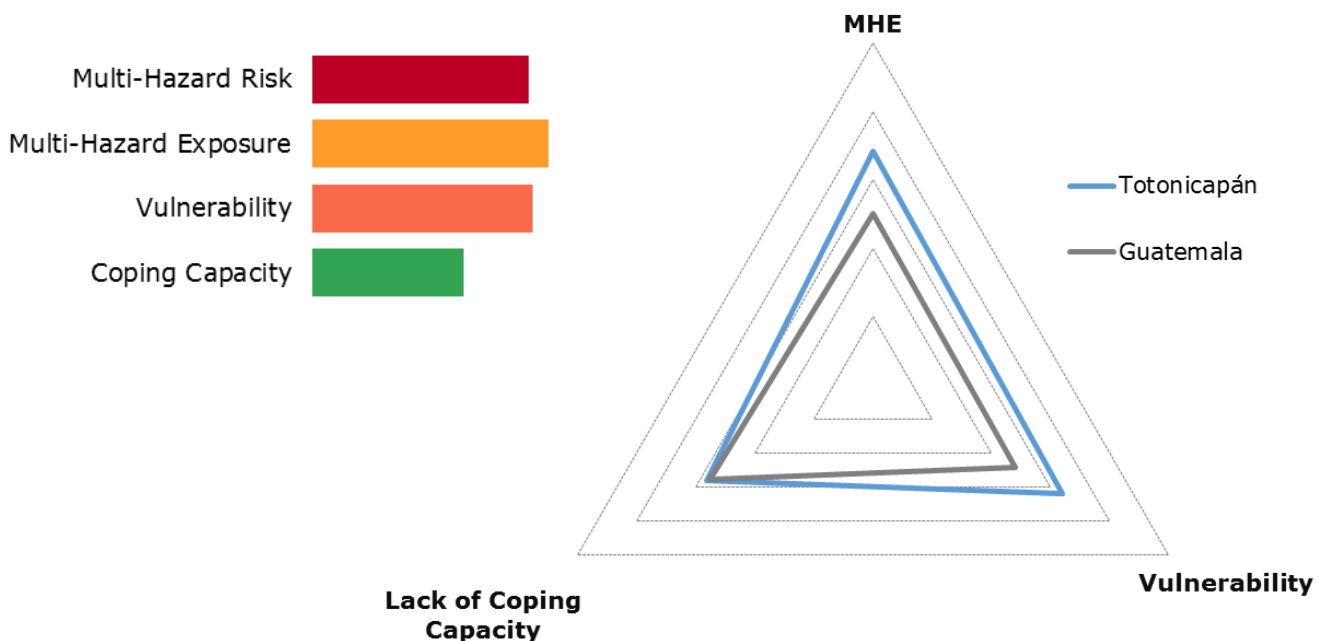


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



High overall governance

Ranked 4 of 22 departments, high governance could facilitate the implementation of disaster management initiatives into departmental and municipal communities.



High transportation capacity

Ranked 4 of 22 departments, well developed transportation networks facilitate the movement of goods and services, decreasing wait times for response and relief supplies.

Recommendations

01

Invest in communication infrastructure

Invest in communication infrastructure to allow for easier access to disaster-related information and education material, increasing literacy and situational awareness of the population.

02

Increase healthcare availability

Increase clinics and medical personnel through incentivized programs and investments to increase the health resilience of the population.



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Guatemala: Zacapa

Image: Google

**National Disaster Preparedness Baseline Assessment –
Department Profile**

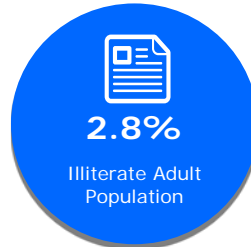
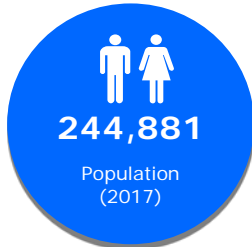
Department: Zacapa



Department Capital: Zacapa

Area: 2,691 km²

Zacapa is in eastern Guatemala and borders Honduras to the southeast. Excluding the highlands, the majority of the department's climate is semi-arid, often going two months without rain. Crops include tomatoes, cantaloupe, tobacco, and sugar cane.



Municipality Population

Zacapa	77,092
Gualán	42,130
La Unión	34,345
Teculután	19,376
Río Hondo	18,768
Estanzuela	12,444
Usumatlán	12,248
Cabañas	11,635
Huité	10,660
San Diego	6,183



**Multi-Hazard Risk Rank:
Very Low (22 of 22)**

**Lack of Resilience Rank:
Very Low (20 of 22)**

RVA Component Scores

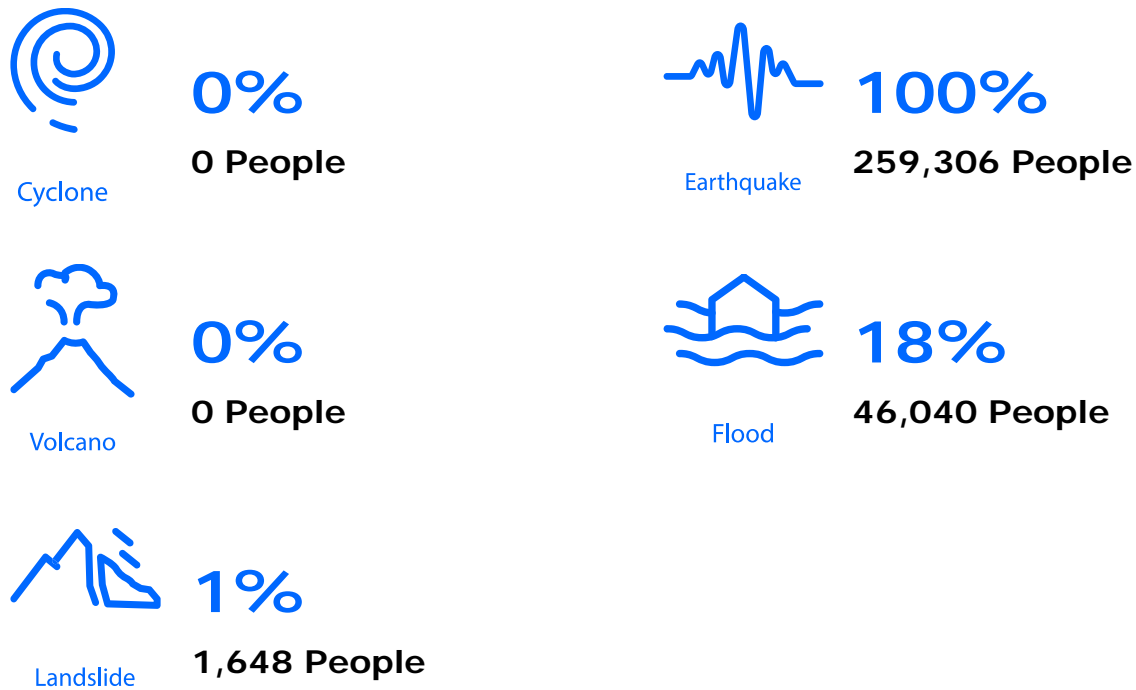
Table 1. Department scores and ranks (compared across departments) for each index

Multi-Hazard Risk		Lack of Resilience		Multi-Hazard Exposure		Vulnerability		Coping Capacity	
Very Low		Very Low		Very Low		Very Low		Very High	
Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)	Score	Rank (of 22)
0.293	22	0.395	20	0.089	21	0.396	20	0.607	3

Multi-Hazard Exposure (MHE)

Multi-Hazard Exposure¹ Rank: 21 of 22 Departments (Score: 0.089)

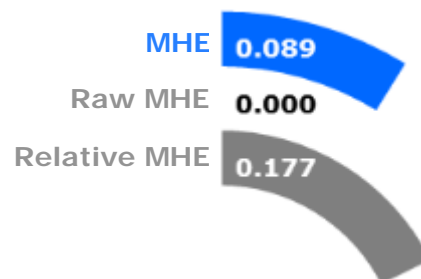
Table 2. Estimated ambient population² exposed to each hazard



The Dry Corridor

Located in Guatemala's "Dry Corridor," Zacapa department experiences extreme dry seasons, often going months without rain. The climate is semi-arid and very warm, with highs in excess of 45°C. The Motagua River flows through the center of the department making fertile land for production of sugar cane, tomatoes, and tobacco. Marble and jade is also mined in the area.

<https://www.revolvy.com/topic/Zacapa%20Department>



¹ Multi-Hazard Exposure: Average exposure of the population to hazards.

² Ambient Population: 24-hour average estimate of the population in each department. Ambient population typically differs from census population.

Vulnerability (V)

Vulnerability³ Rank: 20 of 22 Departments (Score: 0.396) Vulnerability in Zacapa is primarily driven by Gender Inequality and Environmental Stress. The bar chart on the right indicates the socioeconomic themes contributing to the department's overall Vulnerability score.

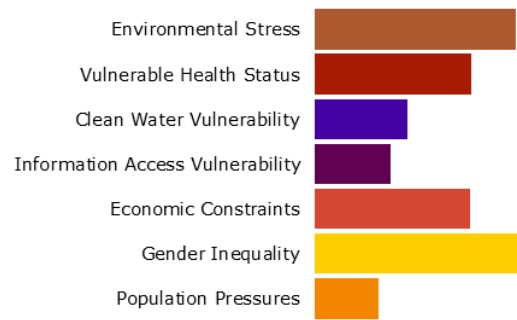









Table 3. Component scores for each Vulnerability sub-component

	Environmental Stress	72.6% Province at Drought Risk	-0.6% Annual Forest Change					
	Vulnerable Health Status	20 Infant Mortality Rate	19.7 Maternal Mortality Ratio	0.5% Acute Malnutrition	2.72% Population Disabled	13.6 TB Incidence	11.8 Dengue Prevalence	32.4 Malaria Prevalence
	Clean Water Vulnerability	84.9% Households with Access to Improved Water	68.7% Households with Access to Improved Sanitation					
	Information Access Vulnerability	2.8% Adult Illiteracy	5.5 Average Years of Schooling	90.5% Primary School Enrollment	8.5% Households with Internet	49.4% Households with Cable TV	73.7% Households with Radio	1.0% Speak Indigenous Language
	Economic Constraints	0.75 Economic Dependency Ratio	55.9% Population in Poverty	0.51 GINI Coefficient				
	Gender Inequality	0.0% Female Seats in Congress	0.08 Ratio of Female to Male Secondary Education Enrollment	0.12 Ratio of Female to Male Economic Activity				
	Population Pressures	1.4% Average Annual Population Change	1.5% Average Annual Urban Population Change	40.0% Food Insecurity				

³ **Vulnerability:** The socioeconomic conditions that are associated with the susceptibility to disruptions in a country's normal functions.

Coping Capacity (CC)

Coping Capacity⁴ Rank: 3 of 22 Departments (Score: 0.607) Zacapa displays a very high level of Coping Capacity, which is attributable to very high Environmental and Economic Capacities. The bar chart on the right indicates the socioeconomic themes contributing to the department’s overall Coping Capacity score.

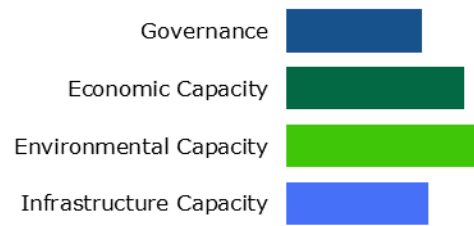


Table 4. Component scores for each Coping Capacity sub-component

	Governance	345.1 Crime Victims per 100K	40.8% Households with Garbage Collection			
	Economic Capacity	\$775.3 Remittances per Capita (USD)	16.3 Businesses per 1,000 persons	15,697 GDP per Capita (Quetzales)		
	Environmental Capacity	26.9% Protected Land	4.0% Reforested Area			
	Infrastructure Capacity					
	Health Care Capacity	12.4 Hospital Beds per 10,000 Persons	5.5 Nurses per 10,000 Persons	6.2 Physicians per 10,000 Persons	16.9 km Average Distance to Nearest Hospital	90.8% Children Completed Immunization Schedule
	Communications Capacity	11.6% Households with Access to Fixed Phone Line	79.0% Households with Access to Mobile Phone	96.9% Households with Access to Electricity		
	Transportation Capacity	21.4 km Average Distance to Nearest Port or Airport	23.5 km Total Length of Road per 100 km ² (area)			

⁴ Coping Capacity: The systems, means, and abilities of a country to absorb and respond to events that could potentially disrupt normal function.

Lack of Resilience (LR)

Lack of Resilience⁵ Rank: 20 of 22 Departments (Score: 0.395)

Zacapa's score and ranking are due to very low Vulnerability combined with very high Coping Capacity scores.

Table 5. The 3 thematic areas with the weakest relative scores



Gender Inequality



Environmental Stress



Governance

Multi-Hazard Risk (MHR)

Multi-Hazard Risk⁶ Rank: 22 of 22 Departments (Score: 0.293)

Zacapa has the lowest Multi-Hazard Risk in the country, which is attributable to very low Multi-Hazard Exposure combined with very low Vulnerability and very high Coping Capacity scores

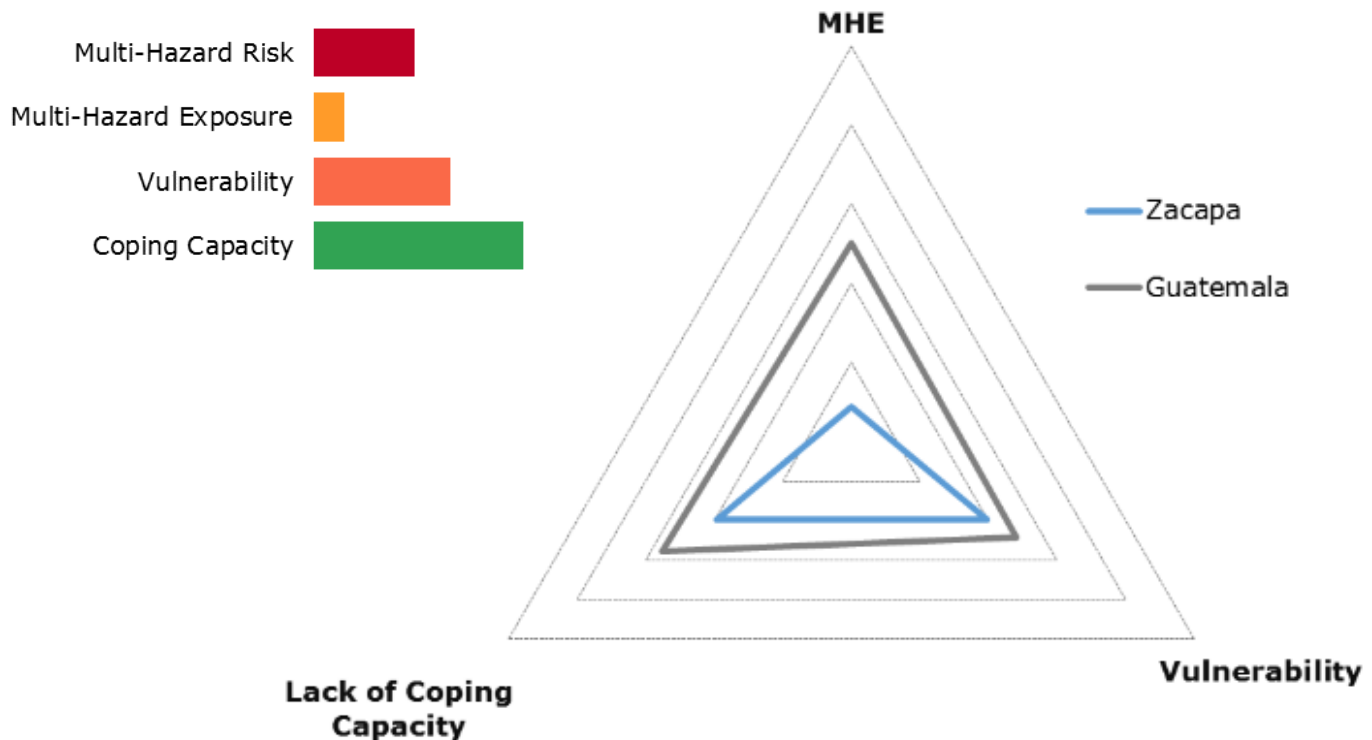


Figure 1. Department Multi-Hazard Risk component scores compared to overall average country scores

⁵ **Lack of Resilience:** The susceptibility to impact from the short-term inability to absorb, respond to, and recover from disruptions to a country's normal function. This index provides a hazard-independent look at current socioeconomic conditions.

⁶ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a country's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability, and coping capacity.

Successes



Lowest overall multi-hazard risk

Ranked 21st in Multi-Hazard Exposure, 20th in Vulnerability, and 3rd in Coping Capacity. Low multi-hazard risk indicates a low susceptibility to impact and the ability to absorb, respond to, and recover from negative impacts that occur over the short term (Coping Capacity).



High information access

High information access indicates that the population has an increased ability to access and comprehend disaster-related information before, during, and after events.



Low population pressures

Ranked 20 of 22 departments, limited population change allows disaster managers to form accurate evacuation, sheltering, and resource plans.

Recommendations

01

Provide opportunities for women

Offer public education and awareness programs that focus on increasing the role of women in the workplace and the society, which will improve resilience and decrease vulnerability.

02

Increase environmental programs

Invest in drought-education programs promoting drought-resistant crops and vegetation. Additionally, foster environmental-protection programs to preserve land and vegetation, increasing resiliency and coping capacity.

03

Increase governance

Invest in government-provided services such as garbage collection, police, and fire. Increased capability in these areas will decrease vulnerability in the department.



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