PDC | GLOBAL

Peru:
Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Amazonas

Population by Province
- Low
- Moderate
- High
- ☆ Region Capital

BAGUA

UTCUBAMBA

CHACHAPOYAS

0 25 50 100 Kilometers
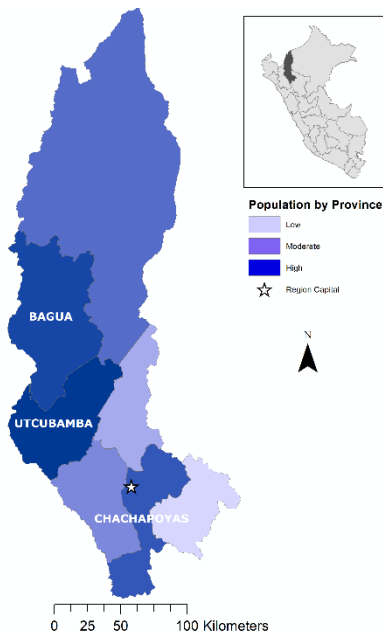
Region Capital: Chachapoyas
Region Area: 39,858 km^2

Amazonas is one of twenty-five regions in Peru. Located in the northern interior of the country, Amazonas is bordered by Ecuador and known for its rugged Andean topography, cloud forests, and the well-known archeological ruins of Chachapoys' culture at Kuélap. Agricultural production, livestock and forestry are the predominate economic activities. Chachapoyas is the region's capital. As of 2015, the region's population was estimated at 422,629; with the highest percentage of its population residing in the provinces of Bagua, Chachapoyas and Utcubamba. Relative to the rest of Peru, the population of Amazonas has lower than average life expectancy (70.6 years), higher than average poverty (47.3%), higher than average illiteracy (9.5%), and lower than average access to improved water sources (79.1%).

422,629 Population (2015)	**70.6 yrs** Average life expectancy	**47.3%** Population in poverty	**9.5%** Illiterate population	**79.1%** Access to improved water

Multi-Hazard Risk (MHR) [1]

Score = 0.486, Rank = 13 of 25

Of the twenty-five regions of Peru, Amazonas ranks 13th in multi-hazard risk (MHR = 0.486). Table 1 outlines the individual components that contribute to risk. As shown in the bar chart of Figure 1, the region's moderate multi-hazard risk is a function of its moderate multi-hazard exposure (MHE = 0.427), moderate vulnerability (V = 0.419), and very low coping capacity (CC = 0.389). The ternary graph at right shows that Amazonas' exposure is somewhat lower than the national average, while vulnerability is similar and lack of coping capacity is higher.
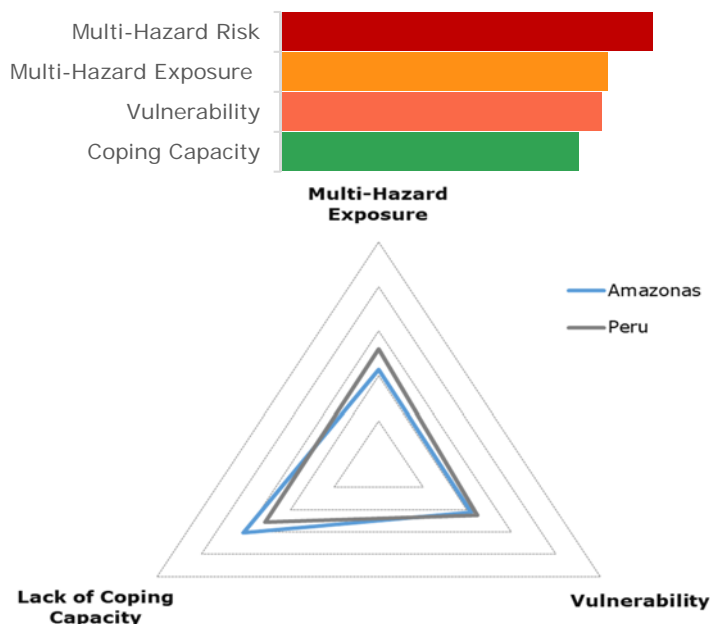

Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

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[1] **Multi-Hazard Risk (MHR)**: An index that measures the likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity. **MHR** = (MHE + V + (1-CC))/3. Values range from 0-1.

Components of Multi-Hazard Risk (MHR) [2]

Table 1. Scores and ranks for each component of the Multi-Hazard Risk Score.

Multi-Hazard Exposure (MHE)		Vulnerability (V)		Coping Capacity (CC)	
Moderate		Moderate		Very Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.427	15	0.419	15	0.389	21

Multi-Hazard Exposure (MHE) [3]

Score = 0.427, Rank = 15 of 25

Amazonas has moderate multi-hazard exposure relative to other regions of Peru (MHE = 0.427). This score is a function of both Raw and Relative MHE, as shown in Figure 2. The Raw MHE Score is an index reflecting the absolute value of population exposed to multiple hazards. This score can aid in understanding the overall scale of hazard exposure. The Relative MHE Score is an index reflecting the proportion of the region's base population exposed. This score can assist in the determination of how important hazards are, and can help prioritize disaster management activities across regions. Estimates of exposure by hazard type are summarized in Table 2.

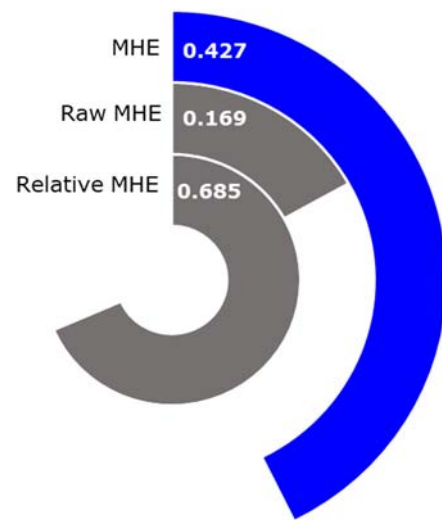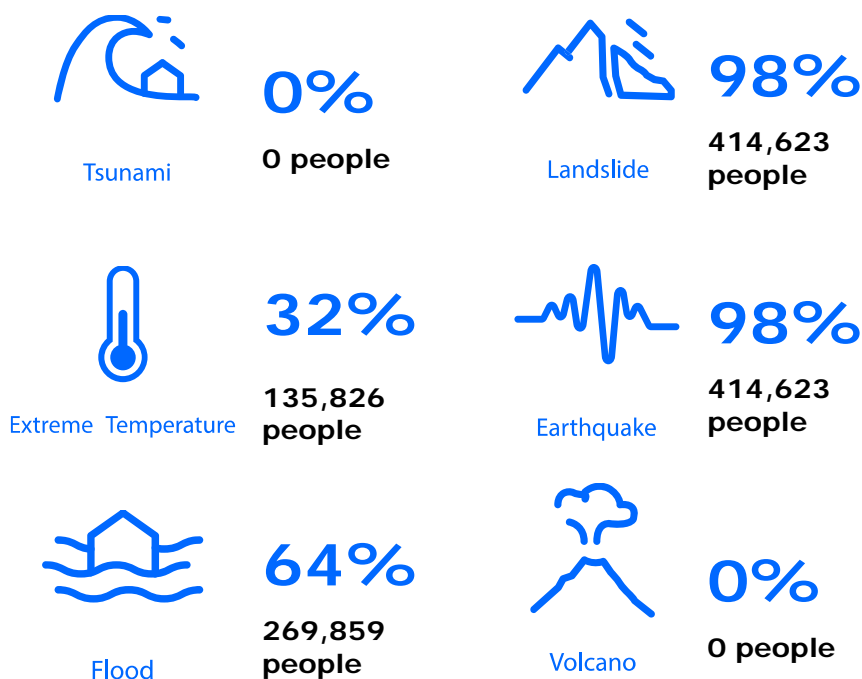*Table 2. Estimated ambient population[4] exposed to each hazard type.*

Tsunami	0% 0 people	
Landslide	98% 414,623 people	
Extreme Temperature	32% 135,826 people	
Earthquake	98% 414,623 people	
Flood	64% 269,859 people	
Volcano	0% 0 people	

MHE 0.427
Raw MHE 0.169
Relative MHE 0.685

Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

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[2] **MHR** = (MHE + V + (1-CC))/3.
[3] **Multi Hazard Exposure (MHE)**: An index based on the estimated average exposure of the population to six hazard types: tsunamis, landslides, extreme temperature, earthquakes (MMI VII and above), floods and volcanos. Average exposure considers both raw average exposure and relative average exposure as a proportion of total population. Values range from 0-1.
[4] **Ambient Population**: 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) [5]

Score = 0.419, Rank = 15 of 25

Amazonas has moderate vulnerability relative to other Peruvian regions (V = 0.419). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Amazonas is driven primarily by information access, clean water access, and vulnerable health status. The table below summarizes the individual indicators within each socio-economic theme.
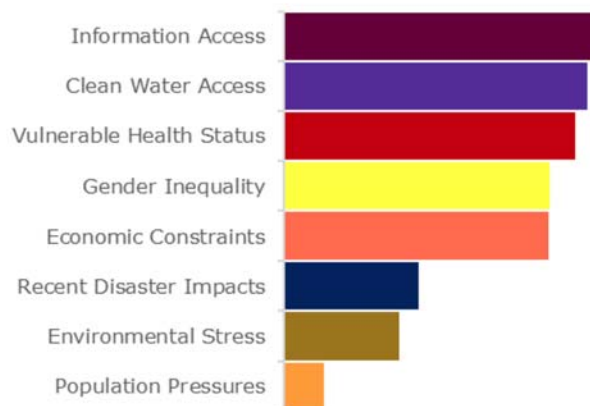

Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	**0.6** % of total Regional area with irrigation-fed agriculture	**2.9** % of total Regional area with severe erosion				
	Vulnerable Health Status	**22.5** Infant mortality rate per 1k births	**114.1** Maternal deaths per 100k births	**70.6** Average life expectancy (years) at birth	**27.1** % of children under 5 years of age that are malnourished	**3.3** % of population with 1 or more disability	
	Clean Water Vulnerability	**79.1** % households with access to improved water	**43.1** % households with access to flush toilets				
	Information Access Vulnerability	**9.5** % of population 15yrs and older that are illiterate	**7.9** Average years of schooling	**88.8** % primary school enrollment	**8.9** % households with internet	**59.5** % households with television	**73.4** % households with radio
	Economic Constraints	**0.58** Ratio of dependents to working age population (15-64 years)	**46.17** Ratio of average monthly household expenses to income	**47.3** % of population monetarily impoverished			
	Gender Inequality	**0.47** Proportion of female representatives in local government	**0.81** Ratio of female to male secondary enrollment	**0.78** Ratio of female to male labor participation			

	Population Pressures	0.5 % Average annual population change (2010-2015)			
	Recent Disaster Impacts	74.5 Average annual hazard-related deaths per 10k persons (2010-2014)	2.2 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)		

Coping Capacity (CC) [6]

Score = 0.389, Rank = 21 of 25

Amazonas has a very low coping capacity relative to other regions (CC = 0.389). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Amazonas is hindered primarily by its economic and environmental capacity. The table below summarizes the individual indicators within each socio-economic theme.
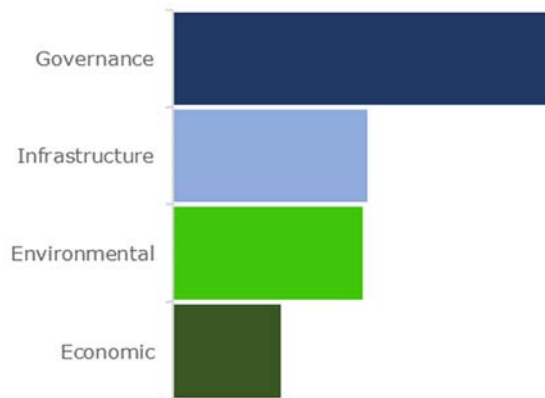

Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.

	Economic Capacity	$858 Average monthly income ($)	$8,716 Gross domestic product per capita		
	Governance	1.76 Registered cases of sexual violence per 10k persons	ND Registered cases of missing persons per 10k persons	0.002 Average annual number of social conflicts per 10k persons (active and resolved)	6,218 # of voters per 10k persons (2014 election)
	Environmental Capacity	9.8 % protected or reforested land			

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[6] **Coping Capacity (CC)**: An index that measures the systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function. Values range from 0-1.

Infrastructure Capacity

	Healthcare Capacity	**15.4** # of hospital beds per 10k persons	**22.4** # of nurses per 10k persons	**5.9** # of physicians per 10k persons
	Communications Capacity	**1.7** % households with fixed phone line	**76.6** % households with mobile phone	
	Transportation Capacity	**1.5** Port/airport density per 10,000 sq km	**727.1** Road/rail density per 10,000 sq km	

Resilience (R) [7]

Score = 0.485, Rank = 17 of 25

Resilience is a function of both vulnerability and coping capacity. Amazonas is less resilient than the national average, and its low Resilience Score (R = 0.485) is due to its moderate vulnerability and very low coping capacity. The region's baseline indicators suggest a focus for resilience-building efforts. In Amazonas, the thematic areas with the weakest relative scores are summarized in the table below. Readers can additionally consult Appendix 1 for a comprehensive assessment of its need for specific program types relative to other regions.

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

Vulnerable Health Status   **Communications Capacity**   **Transportation Capacity**

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[7] **Resilience (R):** An index that offers a hazard-independent measure of current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region's normal function. Values range from 0-1.