

A photograph of a large, snow-capped mountain peak, likely in the Andes, reflected in a calm lake. The sky is a clear, deep blue. The foreground shows a grassy field and the water's surface, which perfectly mirrors the mountain and sky.

Peru Regional Profiles

National Disaster Preparedness Baseline Assessment

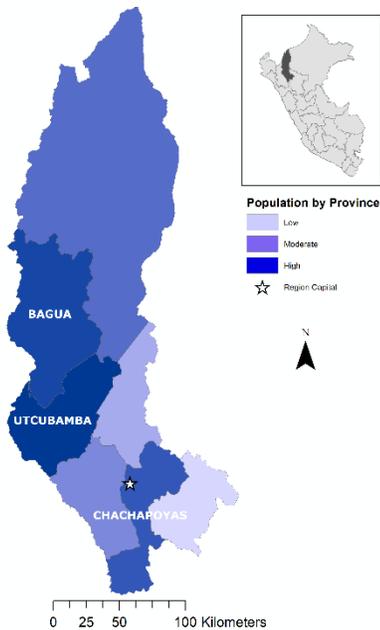
SUBNATIONAL ASSESSMENT RESULTS



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Amazonas



Region Capital: Chachapoyas
 Region Area: 39,858 km²

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 Chachapoyas' 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%).



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, 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.

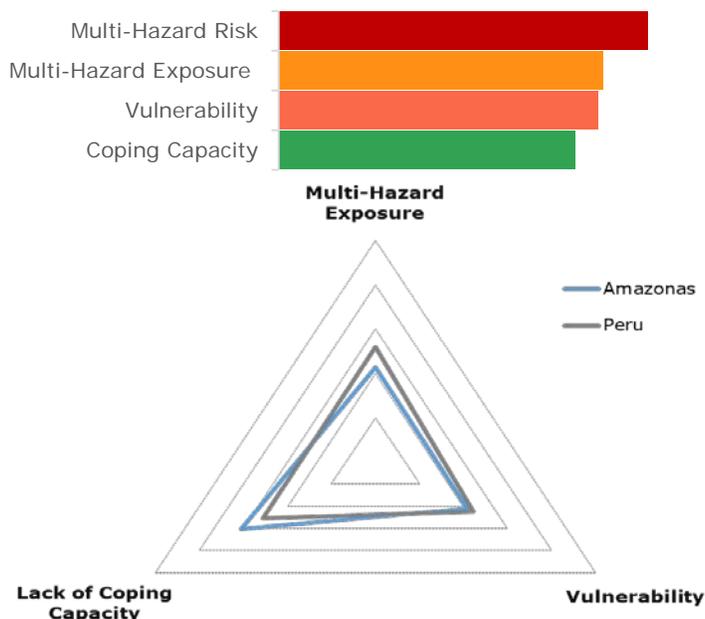


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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). Percentages of Amazonas' population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

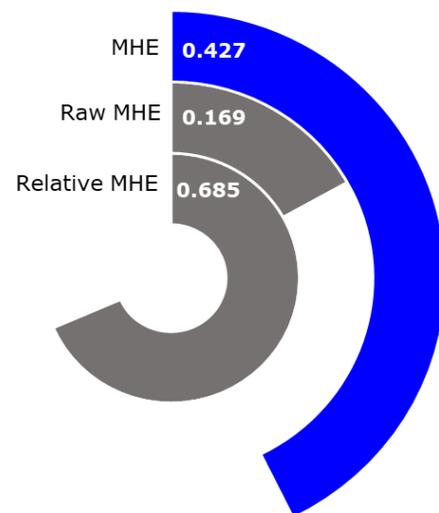
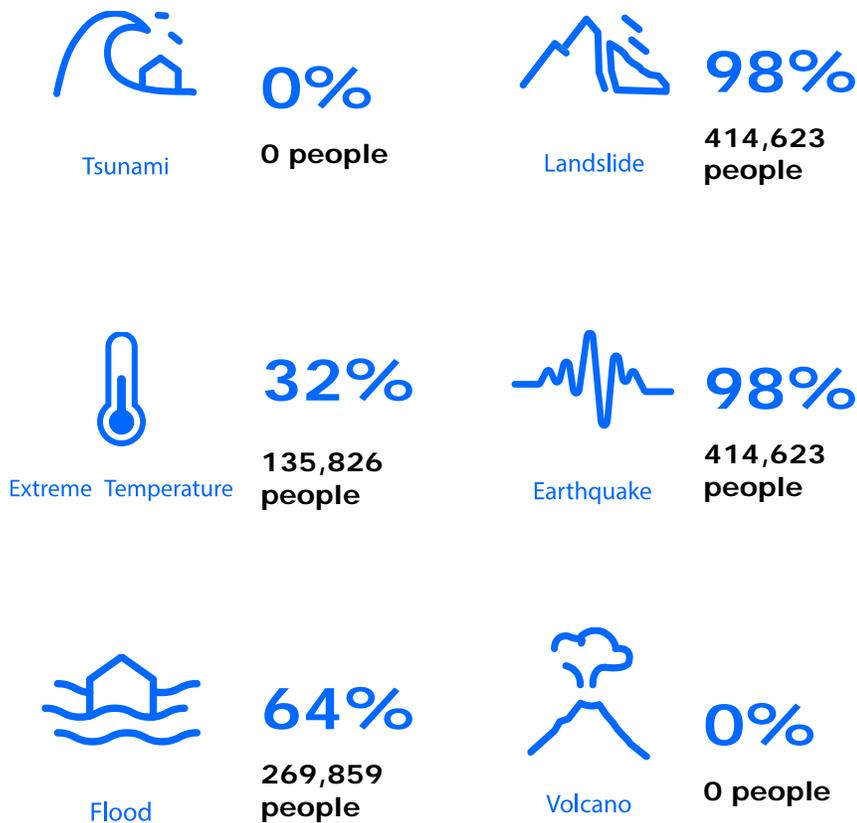


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² MHR = (MHE + V + (1-CC))/3.

³ Multi-Hazard Exposure: Average exposure of the population to hazards.

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 primarily driven by information access, clean water access, and vulnerable health status. The table below summarizes the individual indicators within each socio-economic theme.

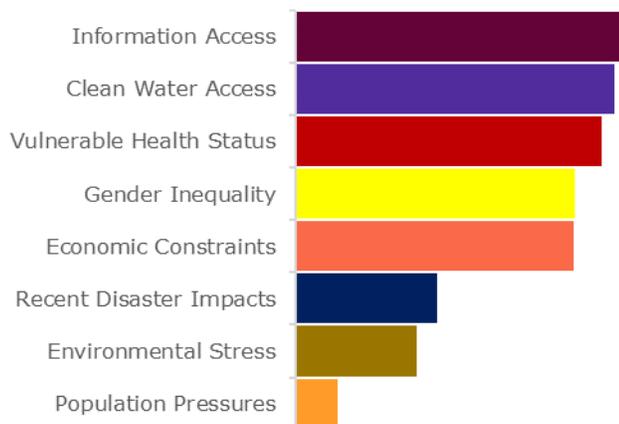


Figure 3. Components of the Vulnerability Score by relative contribution.

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			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



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.

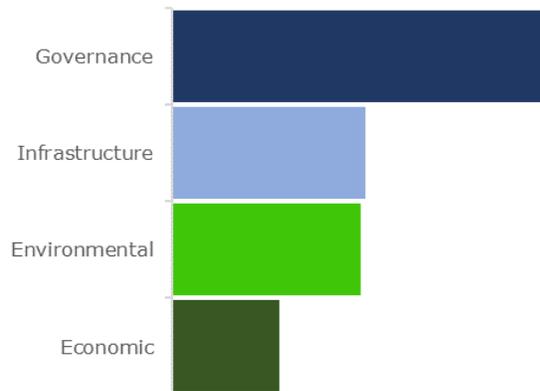


Figure 4. Components of the Coping Capacity Score by relative contribution.

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

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



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

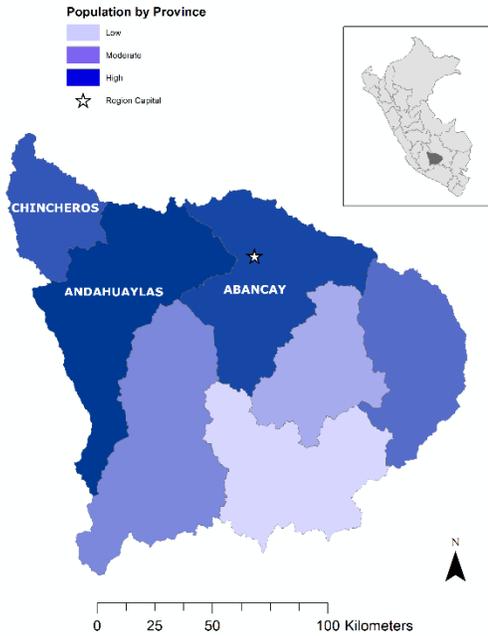
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Apurímac



Region Capital: Abancay
Region Area: 22,527 km²

Apurímac is one of twenty-five regions in Peru. Located in the southern interior of Peru, Apurímac is a growing adventure-sports destination bordering the popular tourism destination of Cusco. Mining is also a predominate economic activity. Abancay is the region capital. As of 2015, Apurímac’s population was estimated at 458,830; with the highest percentage of its population residing in the provinces of Abancay, Andahuaylas and Chincheros. Relative to the rest of Peru, the population of Apurímac has higher than average access to improved water sources (91.4%); though lower than average life expectancy (70.2 years), and higher than average poverty (42.8%) and illiteracy (17.1%).



Multi-Hazard Risk (MHR) ¹

Score = 0.486, Rank = 12 of 25

Of the twenty-five regions of Peru, Apurímac ranks 12th in multi-hazard risk (MHR = 0.486). Table 1 outlines the individual components that contribute to risk. As shown, Apurímac’s moderate multi-hazard risk is a function of its very low multi-hazard exposure (MHE = 0.196), high vulnerability (V = 0.543), and very low coping capacity (CC = 0.282). The ternary graph at right shows that Apurímac’s multi-hazard exposure is significantly lower than the national average, while its vulnerability and lack of coping capacity are higher.

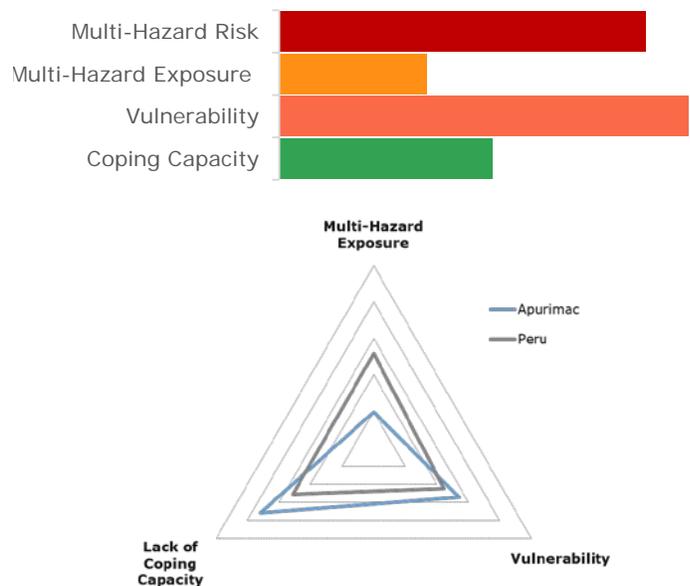


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very Low		High		Very Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.196	22	0.543	6	0.282	24

Multi-Hazard Exposure (MHE) ³

Score = 0.196, Rank = 22 of 25

Apurímac has very low multi-hazard exposure relative to other regions of Peru (MHE = 0.196). Percentages of Apurímac population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

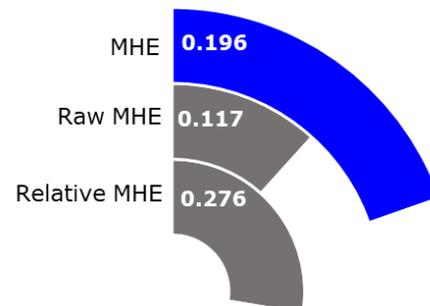
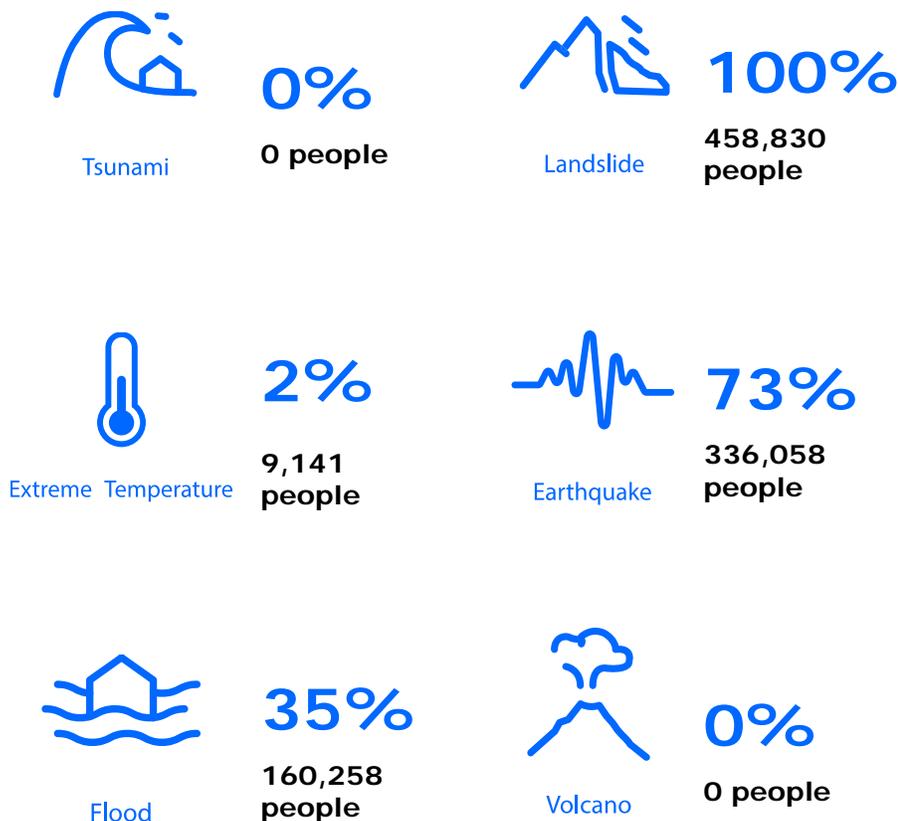


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.543, Rank = 6 of 25

Apurímac has high vulnerability relative to other Peruvian regions (V = 0.543). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Apurímac is driven primarily by recent disaster impacts, environmental stress and information access. The table below summarizes the individual indicators within each socio-economic theme.

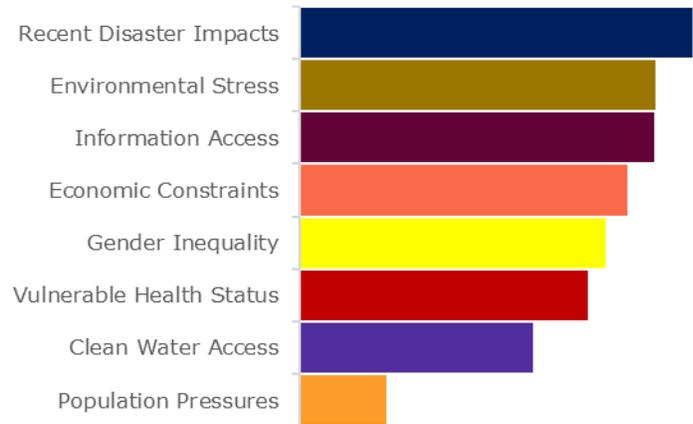


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	5.8 % of total regional area with irrigation-fed agriculture	22.8 % of total regional area with severe erosion				
	Vulnerable Health Status	20.4 Infant mortality rate per 1k births	24.6 Maternal deaths per 100k births	70.2 Average life expectancy (years) at birth	29.0 % of children under 5 years of age that are malnourished	5.0 % of population with 1 or more disability	
	Clean Water Vulnerability	91.4 % households with access to improved water	43.5 % households with access to flush toilets				
	Information Access Vulnerability	17.1 % of population 15yrs and older that are illiterate	8.5 Average years of schooling	78.6 % primary school enrollment	4.4 % households with internet	61.9 % households with television	85.0 % households with radio
	Economic Constraints	0.64 Ratio of dependents to working age population (15-64 years)	51.80 Ratio of average monthly household expenses to income	42.8 % of population monetarily impoverished			
	Gender Inequality	0.49 Proportion of female representatives in local government	0.61 Ratio of female to male secondary enrollment	0.91 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.6
% Average annual population change (2010-2015)



Recent Disaster Impacts

1,827.9
Average annual hazard-related deaths per 10k persons (2010-2014)

3.9
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.282, Rank = 24 of 25

Apurímac has a very low coping capacity relative to other regions (CC = 0.282). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Apurímac is hindered primarily by its environmental and economic capacity. The table below summarizes the individual indicators within each socio-economic theme.

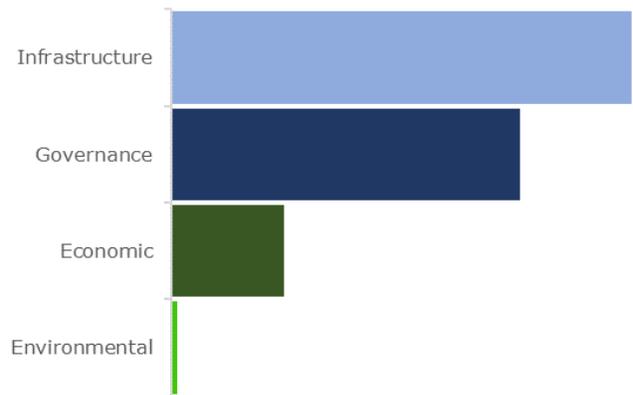


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$842
Average monthly income (\$)

\$7,001
Gross domestic product per capita



Governance

2.52
Registered cases of sexual violence per 10k persons

0.79
Registered cases of missing persons per 10k persons

0.054
Average annual number of social conflicts per 10k persons (active and resolved)

6,069
of voters per 10k persons (2014 election)



Environmental Capacity

0.2
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	16.1 # of hospital beds per 10k persons	30.5 # of nurses per 10k persons	11.5 # of physicians per 10k persons
	Communications Capacity	4.3 % households with fixed phone line	76.7 % households with mobile phone	
	Transportation Capacity	0.9 Port/airport density per 10,000 sq km	2,602.4 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.370, Rank = 23 of 25

Resilience is a function of both vulnerability and coping capacity. Apurímac is less resilient than the national average, and its low Resilience Score (R = 0.370) is due to its high vulnerability and very low coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Apurímac, 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.



Recent Disaster Impacts



Economic Capacity



Environmental Capacity

⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



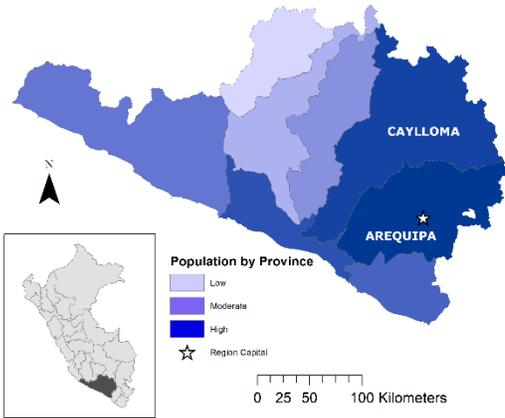
Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Arequipa

Region Capital: Arequipa
 Region Area: 68,662 km²

Arequipa is one of twenty-five regions in Peru. Located in southern coastal Peru, Arequipa, the region capital, is an important colonial city with a rich natural and cultural heritage. Extraction of oil, gas and minerals are the predominate economic activities in the region, followed by service industries and manufacturing. As of 2015, the region’s population was estimated at 1,287,205; with the highest percentage of its population residing in the provinces of Arequipa, Camana and Caylloma. Relative to the rest of Peru, the population of Arequipa has higher than average life expectancy (76.3 years) and access to improved water sources (92.4%), while also having lower than average poverty (9.1%) and illiteracy (4.6%).



Multi-Hazard Risk (MHR) ¹

Score = 0.451, Rank = 16 of 25

Of the twenty-five regions of Peru, Arequipa ranks 16th in multi-hazard risk (MHR = 0.451). Table 1 outlines the individual components that contribute to risk. As shown, Arequipa’s low multi-hazard risk is a function of its very high multi-hazard exposure (MHE = 0.738), very low vulnerability (V = 0.336), and very high coping capacity (CC = 0.721). The ternary graph at right shows that Arequipa’s multi-hazard exposure is higher than the national average, however, this exposure is countered by lower vulnerability and higher capacity to cope.

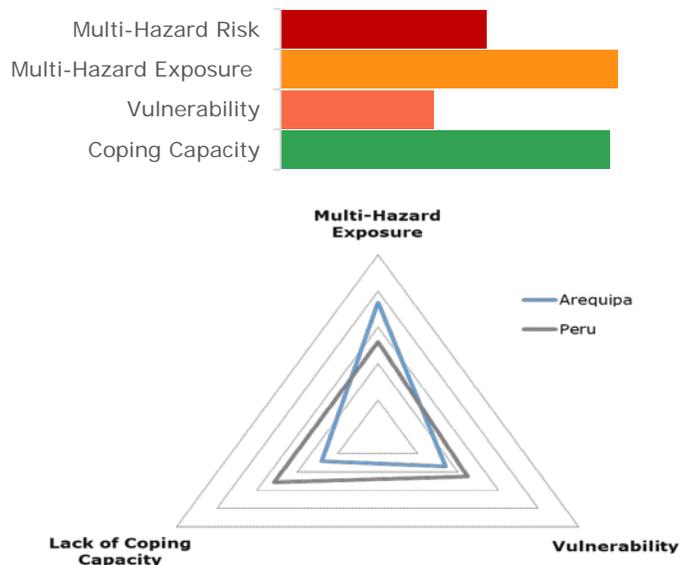


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very High		Very Low		Very High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.738	5	0.336	24	0.721	2

Multi-Hazard Exposure (MHE) ³

Score = 0.738, Rank = 5 of 25

Arequipa has very high multi-hazard exposure relative to other regions of Peru (MHE = 0.738). Percentages of Arequipa population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

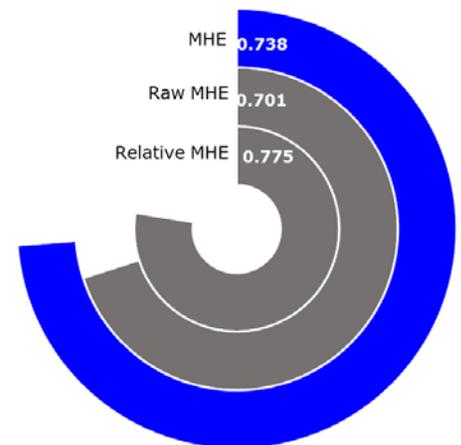
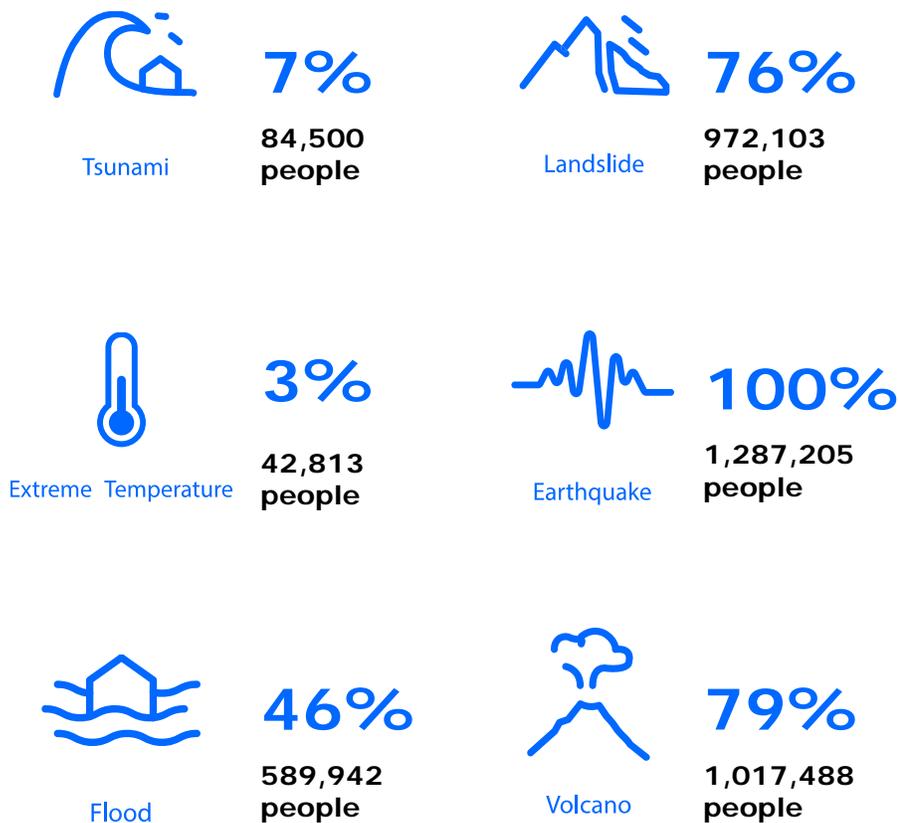


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.336, Rank = 24 of 25

Arequipa has very low vulnerability relative to other Peruvian regions (V = 0.336). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Arequipa is driven primarily by population pressures, recent disaster impacts, and environmental stress. The table below summarizes the individual indicators within each socio-economic theme.

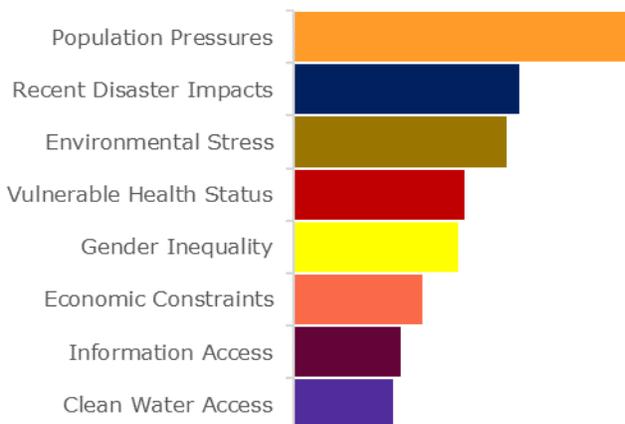


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	1.9 % of total regional area with irrigation-fed agriculture	9.2 % of total regional area with severe erosion				
	Vulnerable Health Status	13.3 Infant mortality rate per 1k births	36.6 Maternal deaths per 100k births	76.3 Average life expectancy (years) at birth	8.7 % of children under 5 years of age that are malnourished	6.6 % of population with 1 or more disability	
	Clean Water Vulnerability	92.4 % households with access to improved water	73.6 % households with access to flush toilets				
	Information Access Vulnerability	4.6 % of population 15yrs and older that are illiterate	10.6 Average years of schooling	78.8 % primary school enrollment	28.9 % households with internet	92.5 % households with television	87.0 % households with radio
	Economic Constraints	0.48 Ratio of dependents to working age population (15-64 years)	54.51 Ratio of average monthly household expenses to income	9.1 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.84 Ratio of female to male secondary enrollment	0.80 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.1
% Average annual population change (2010-2015)



Recent Disaster Impacts

345.0
Average annual hazard-related deaths per 10k persons (2010-2014)

3.3
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.721, Rank = 2 of 25

Arequipa has a very high coping capacity relative to other regions (CC = 0.721). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Arequipa is hindered primarily by its environmental and infrastructure capacity. The table below summarizes the individual indicators within each socio-economic theme.

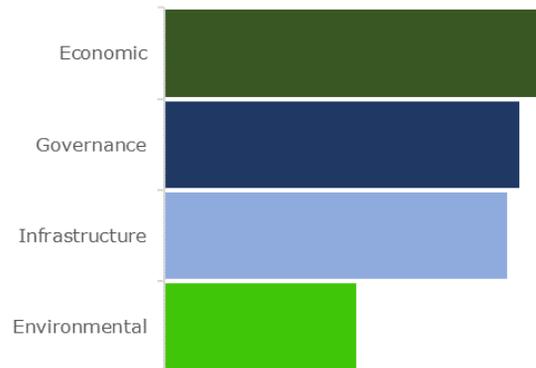


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,429
Average monthly income (\$)

\$22,032
Gross domestic product per capita



Governance

2.92
Registered cases of sexual violence per 10k persons

0.32
Registered cases of missing persons per 10k persons

0.004
Average annual number of social conflicts per 10k persons (active and resolved)

7,833
of voters per 10k persons (2014 election)



Environmental Capacity

13.3
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	16.8 # of hospital beds per 10k persons	42.8 # of nurses per 10k persons	38.8 # of physicians per 10k persons
	Communications Capacity	27.8 % households with fixed phone line	91.2 % households with mobile phone	
	Transportation Capacity	1.9 Port/airport density per 10,000 sq km	1,234.0 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.693, Rank = 3 of 25

Resilience is a function of both vulnerability and coping capacity. Arequipa is more resilient than the national average, and its very high Resilience Score (R = 0.693) is due to its very low vulnerability and very high coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Arequipa, 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.



Population Pressures



Recent Disaster Impacts



Transportation Capacity

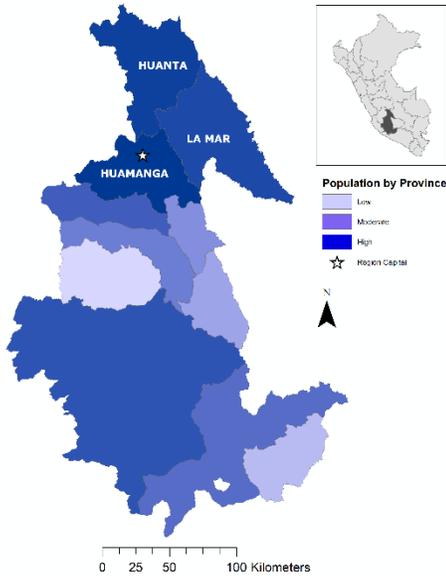
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Ayacucho



Region Capital: Ayacucho
 Region Area: 46,554 km²

Ayacucho is one of twenty-five regions in Peru. Located in the southern interior of Peru, Ayacucho’s primary economic activities are mining, service industries, and agricultural production. As of 2015, Ayacucho’s population was estimated at 688,657; with the highest percentage of its population residing in the northern provinces of Huanta, Huamanga and La Mar. The largest population resides in Huamanga, though Ayacucho is the region’s capital. Relative to the rest of Peru, the population of Ayacucho has lower than average life expectancy (70.8 years), high poverty (51.9%), high illiteracy (12.7%), and high access to improved water sources (86.9%).



Multi-Hazard Risk (MHR) ¹

Score = 0.514, Rank = 10 of 25

Of the twenty-five regions of Peru, Ayacucho ranks 10th in multi-hazard risk (MHR = 0.514). Table 1 outlines the individual components that contribute to risk. As shown, Ayacucho’s high multi-hazard risk is a function of its very low multi-hazard exposure (MHE = 0.166), very high vulnerability (V = 0.609), and very low coping capacity (CC = 0.233). The ternary graph at right shows that Ayacucho’s multi-hazard exposure is significantly lower than the national average, however, its vulnerability and lack of coping capacity are significantly higher.

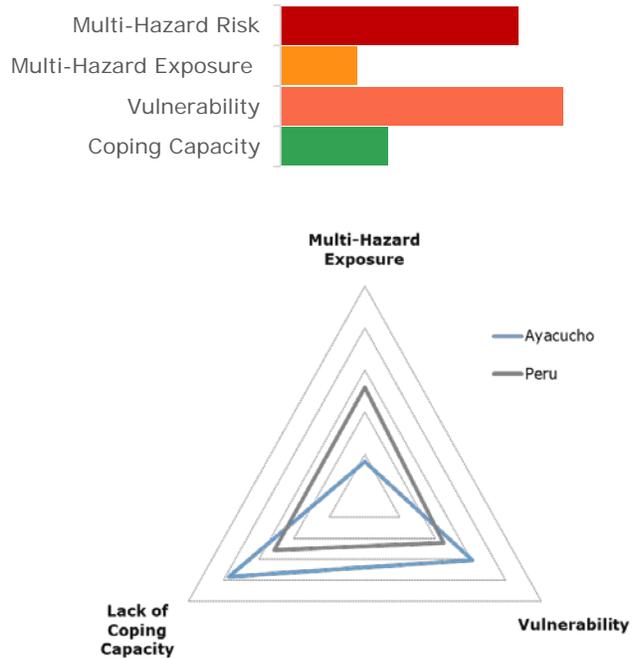


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very Low		Very High		Very Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.166	24	0.609	2	0.233	25

Multi-Hazard Exposure (MHE) ³

Score = 0.166, Rank = 24 of 25

Ayacucho has very low multi-hazard exposure relative to other regions of Peru (MHE = 0.166). Percentages of Ayacucho population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

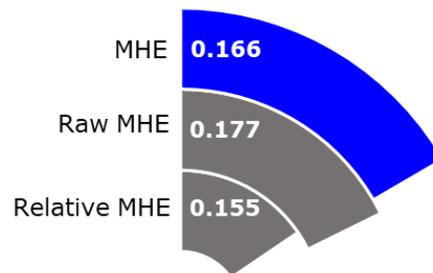
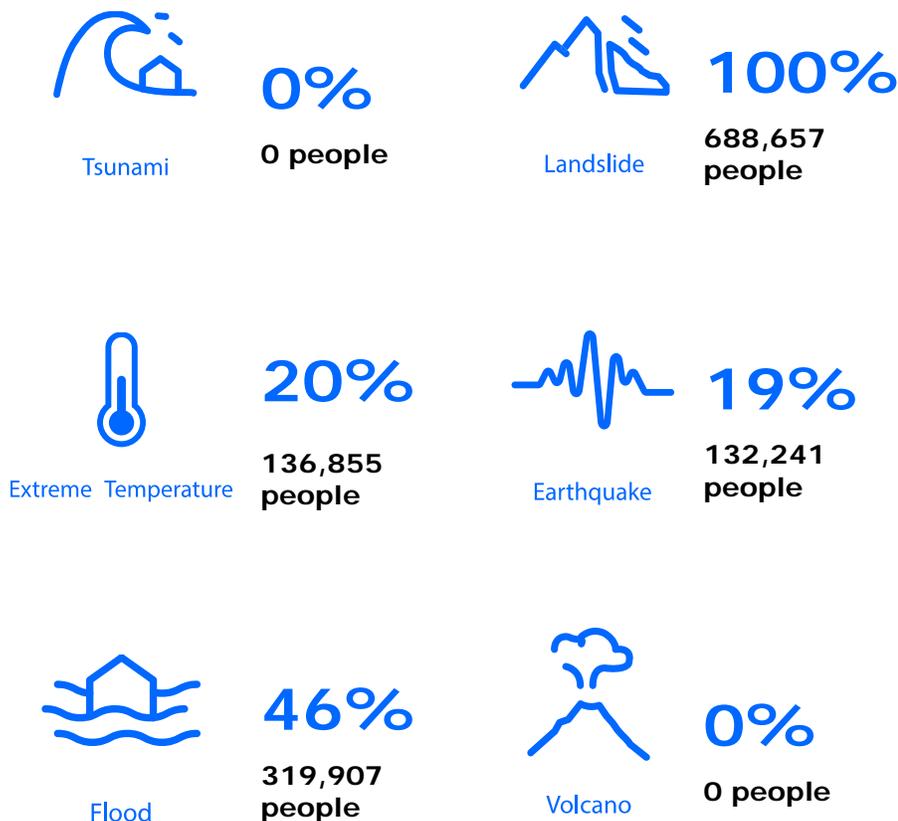


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.609, Rank = 2 of 25

Ayacucho has very high vulnerability relative to other Peruvian regions (V = 0.609). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Ayacucho is driven primarily by limited information access, economic constraints, population pressures and recent disaster impacts. The table below summarizes the individual indicators within each socio-economic theme.

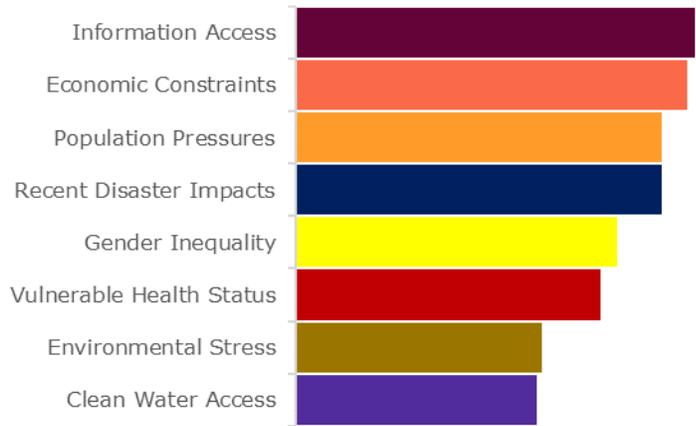


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	1.9 % of total regional area with irrigation-fed agriculture	14.6 % of total regional area with severe erosion				
	Vulnerable Health Status	21.9 Infant mortality rate per 1k births	60.6 Maternal deaths per 100k births	70.8 Average life expectancy (years) at birth	28.0 % of children under 5 years of age that are malnourished	4.8 % of population with 1 or more disability	
	Clean Water Vulnerability	86.9 % households with access to improved water	48.9 % households with access to flush toilets				
	Information Access Vulnerability	12.7 % of population 15yrs and older that are illiterate	8.4 Average years of schooling	72.6 % primary school enrollment	6.3 % households with internet	64.1 % households with television	72.4 % households with radio
	Economic Constraints	0.65 Ratio of dependents to working age population (15-64 years)	56.11 Ratio of average monthly household expenses to income	51.9 % of population monetarily impoverished			
	Gender Inequality	0.49 Proportion of female representatives in local government	0.58 Ratio of female to male secondary enrollment	0.89 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.2
% Average annual population change (2010-2015)



Recent Disaster Impacts

357.3 Average annual hazard-related deaths per 10k persons (2010-2014)

15.0 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.233, Rank = 25 of 25

Ayacucho has a very low coping capacity relative to other regions (CC = 0.233). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Ayacucho is hindered primarily by its environmental and economic capacity. The table below summarizes the individual indicators within each socio-economic theme.

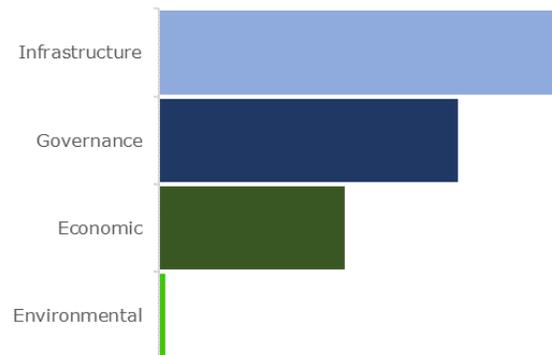


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$773 Average monthly income (\$)

\$9,836 Gross domestic product per capita



Governance

4.17 Registered cases of sexual violence per 10k persons

1.25 Registered cases of missing persons per 10k persons

0.018 Average annual number of social conflicts per 10k persons (active and resolved)

6,014 # of voters per 10k persons (2014 election)



Environmental Capacity

0.2 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	16.6 # of hospital beds per 10k persons	20.5 # of nurses per 10k persons	5.6 # of physicians per 10k persons
	Communications Capacity	5.3 % households with fixed phone line	75.5 % households with mobile phone	
	Transportation Capacity	0.6 Port/airport density per 10,000 sq km	1,521.3 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.312, Rank = 24 of 25

Resilience is a function of both vulnerability and coping capacity. Ayacucho is significantly less resilient than the national average, and its very low Resilience Score (R = 0.312) is due to its very high vulnerability and very low coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Ayacucho, 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.



Economic Constraints



Governance



Information Access Vulnerability

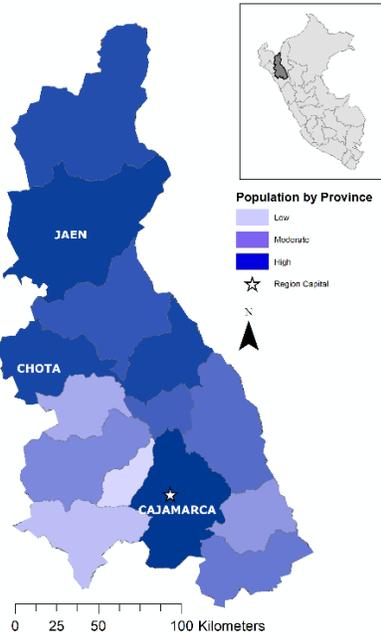
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Cajamarca



Region Capital: Cajamarca
 Region Area: 33,494 km²

Cajamarca is one of twenty-five regions in Peru, and its capital is an important town in the Peruvian highlands. A former territory of the Incan empire, Cajamarca is located in the northwest of the country, spans a mid-elevation geography, and shares a border with Ecuador. Its primary economic activities include mining, other services (e.g., tourism) and agriculture. As of 2015, Cajamarca's population was estimated at 1,529,755; with nearly half of its entire population residing in the provinces of Cajamarca, Jaen and Chota. Relative to the rest of Peru, the population of Cajamarca has lower than average life expectancy (72.9 years) and access to improved water sources (75.8%), while having higher than average poverty (52.9%) and illiteracy (13.1%).



Multi-Hazard Risk (MHR) ¹

Score = 0.610, Rank = 1 of 25

Of the twenty-five regions of Peru, Cajamarca ranks first in multi-hazard risk (MHR = 0.610). Table 1 outlines the individual components that contribute to risk. As shown, Cajamarca's very high multi-hazard risk is a function of its very high multi-hazard exposure (MHE = 0.754), high vulnerability (V = 0.488), and low coping capacity (CC = 0.412). The ternary graph at right shows that individual risk components are all higher in Cajamarca compared to national averages. This is especially true of its multi-hazard exposure.

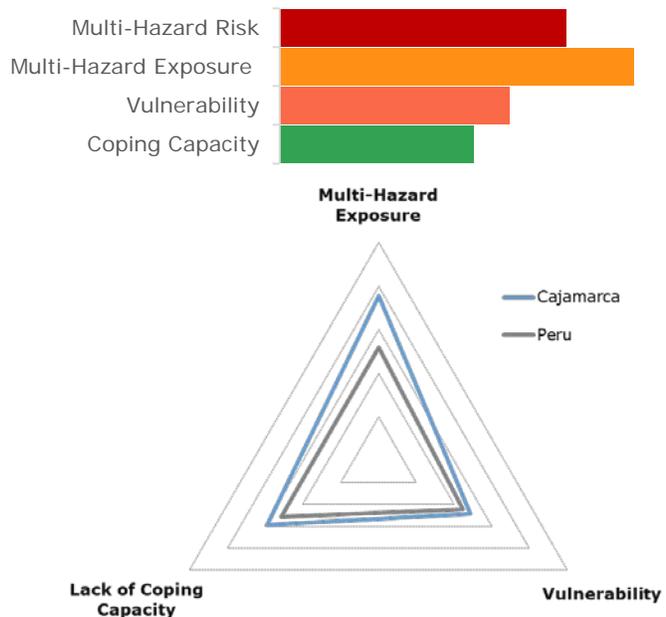


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very High		High		Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.754	3	0.488	9	0.412	19

Multi-Hazard Exposure (MHE) ³

Score = 0.754, Rank = 3 of 25

Cajamarca has very high multi-hazard exposure relative to other regions of Peru (MHE = 0.754). Percentages of Cajamarca’s population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

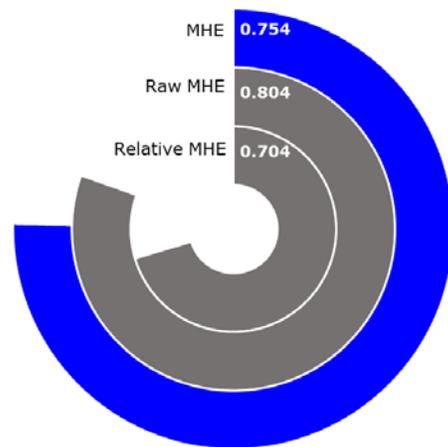
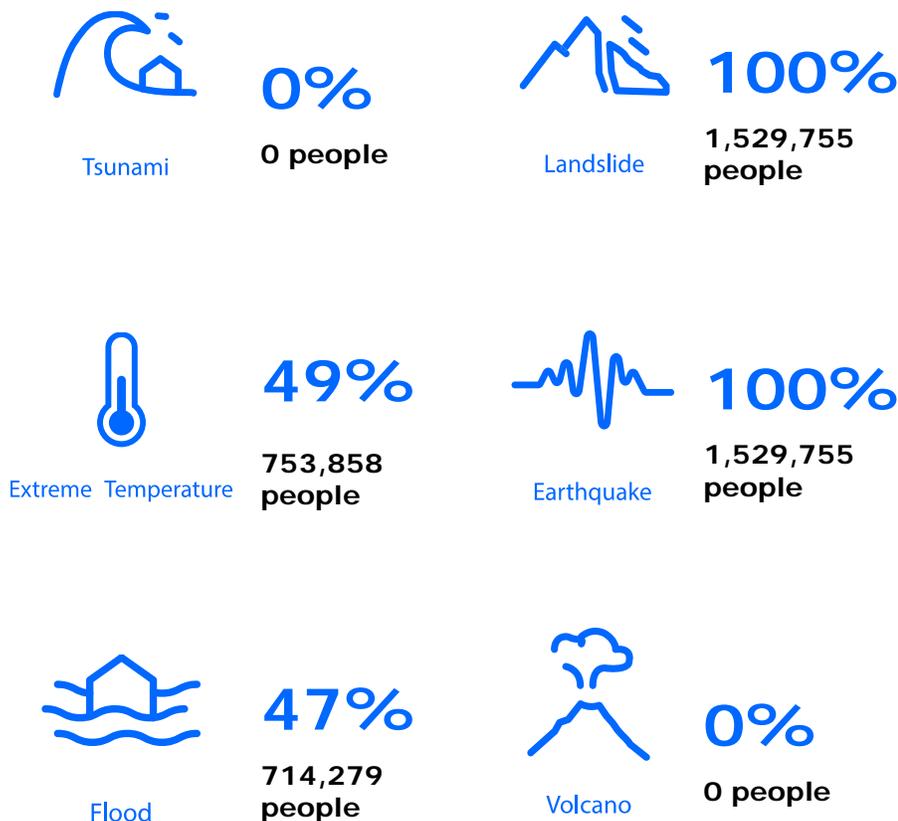


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.488, Rank = 9 of 25

Cajamarca has high vulnerability relative to other Peruvian regions (V = 0.488). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Cajamarca is driven primarily by information access, gender inequality and clean water access. The table below summarizes the individual indicators within each socio-economic theme.

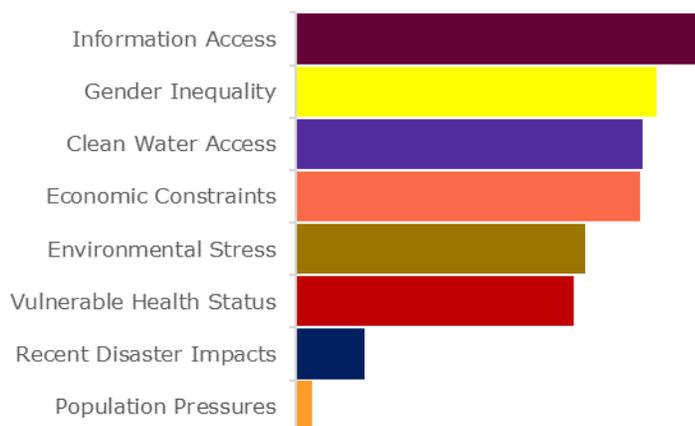


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	3.7 % of total regional area with irrigation-fed agriculture	15.9 % of total regional area with severe erosion				
	Vulnerable Health Status	18.0 Infant mortality rate per 1k births	93.4 Maternal deaths per 100k births	72.9 Average life expectancy (years) at birth	35.6 % of children under 5 years of age that are malnourished	4.0 % of population with 1 or more disability	
	Clean Water Vulnerability	75.8 % households with access to improved water	41.7 % households with access to flush toilets				
	Information Access Vulnerability	13.1 % of population 15yrs and older that are illiterate	7.7 Average years of schooling	73.0 % primary school enrollment	4.8 % households with internet	54.4 % households with television	79.5 % households with radio
	Economic Constraints	0.59 Ratio of dependents to working age population (15-64 years)	53.25 Ratio of average monthly household expenses to income	52.9 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.68 Ratio of female to male secondary enrollment	0.79 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.4
% Average annual population change (2010-2015)



Recent Disaster Impacts

13.3 Average annual hazard-related deaths per 10k persons (2010-2014)
0.7 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.412, Rank = 19 of 25

Cajamarca has a low coping capacity relative to other regions (CC = 0.412). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Cajamarca is hindered primarily by its environmental and economic capacity. The table below summarizes the individual indicators within each socio-economic theme.

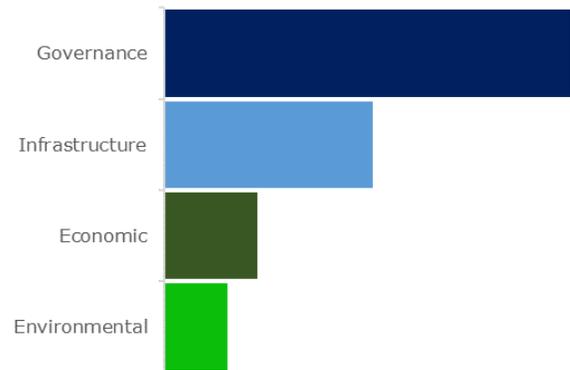


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$761 Average monthly income (\$)
\$9,843 Gross domestic product per capita



Governance

0.87 Registered cases of sexual violence per 10k persons
0.70 Registered cases of missing persons per 10k persons
0.006 Average annual number of social conflicts per 10k persons (active and resolved)
6,508 # of voters per 10k persons (2014 election)



Environmental Capacity

3.5 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	10.1 # of hospital beds per 10k persons	12.2 # of nurses per 10k persons	4.8 # of physicians per 10k persons
	Communications Capacity	3.6 % households with fixed phone line	78.5 % households with mobile phone	
	Transportation Capacity	2.1 Port/airport density per 10,000 sq km	2,815.1 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.462, Rank = 19 of 25

Resilience is a function of both vulnerability and coping capacity. Cajamarca is less resilient than the national average, and its low Resilience Score (R = 0.462) is due to its high vulnerability and low coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Cajamarca, 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.



Gender Inequality



Information Access Vulnerability



Healthcare Capacity

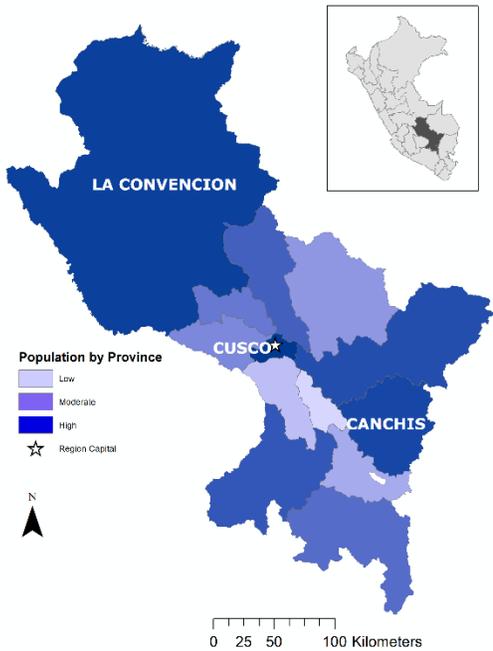
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Cusco



Region Capital: Cusco
Region Area: 76,383 km²

Cusco is one of twenty-five regions in Peru. Located in the southern interior of Peru, the colonial city of Cusco, a former Incan capital, has a rich natural and cultural history. Cusco is a popular destination for national and international tourists, and tourism is an important economic activity. Mining is also a predominate economic activity in the region. As of 2015, the regional population was estimated at 1,316,729; with the highest percentage residing in the provinces of Cusco, Canchis and La Convención. Relative to the rest of Peru, the population of Cusco has lower than average life expectancy (70.3 years), low poverty (18.8%), high illiteracy (12.7%) and higher than average access to improved water sources (88.5%).



Multi-Hazard Risk (MHR) ¹

Score = 0.531, Rank = 8 of 25

Of the twenty-five regions of Peru, Cusco ranks 8th in multi-hazard risk (MHR = 0.531). Table 1 outlines the individual components that contribute to risk. As shown, Cusco's high multi-hazard risk is a function of its high multi-hazard exposure (MHE = 0.661), moderate vulnerability (V = 0.432), and moderate coping capacity (CC = 0.498). The ternary graph at right shows that Cusco' exposure is higher than the national average, while vulnerability and lack of coping capacity are in line with national averages for these components.

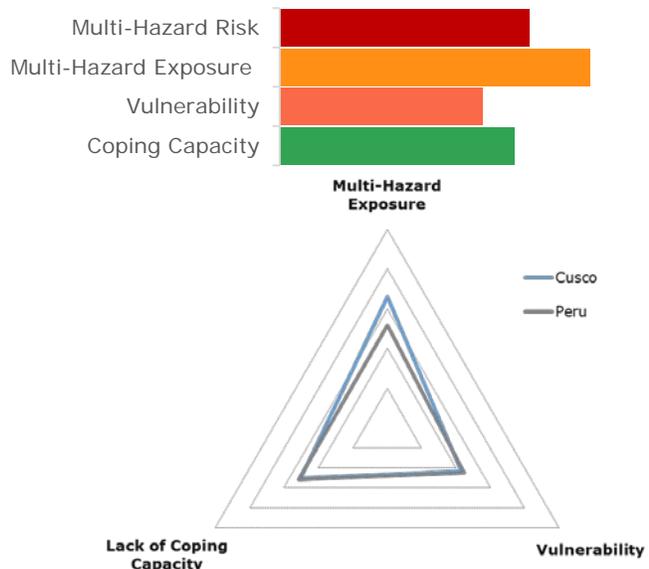


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
High		Moderate		Moderate	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.661	10	0.432	13	0.498	11

Multi-Hazard Exposure (MHE) ³

Score = 0.661, Rank = 10 of 25

Cusco has high multi-hazard exposure relative to other regions of Peru (MHE = 0.661). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

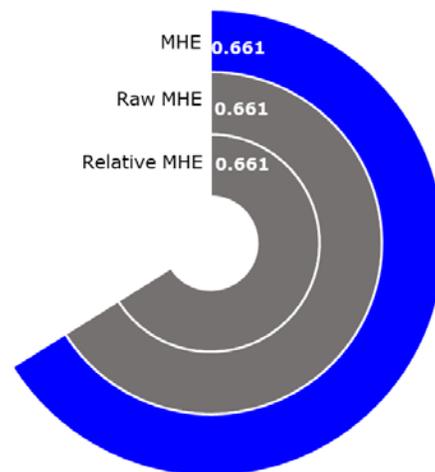
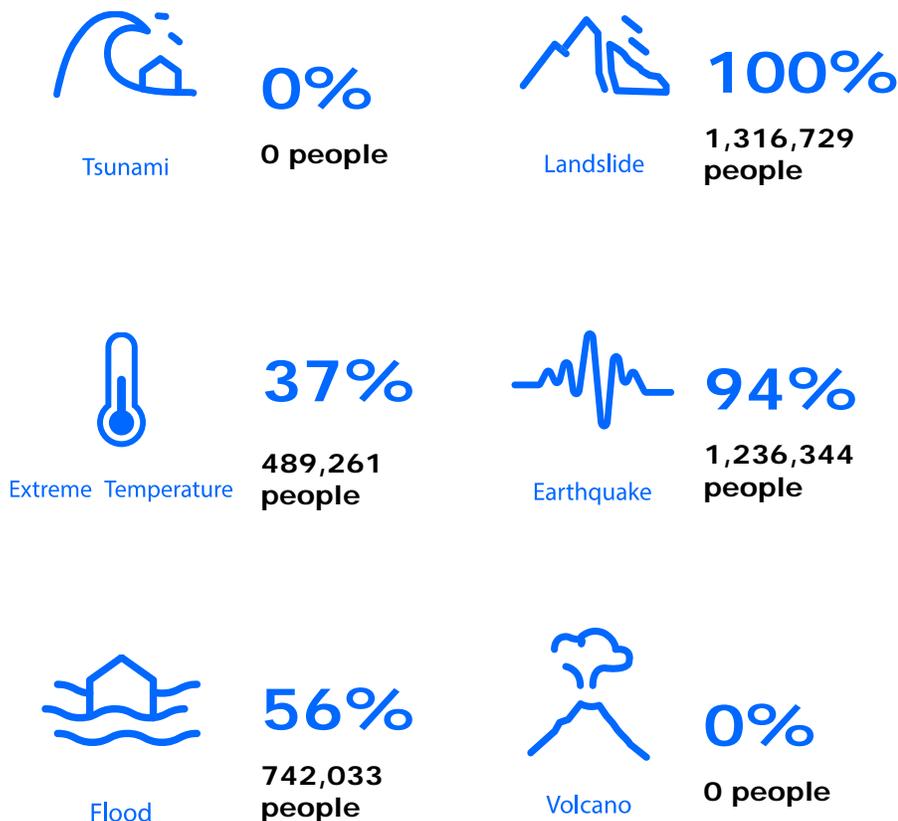


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.432, Rank = 13 of 25

Cusco has moderate vulnerability relative to other Peruvian regions (V = 0.432). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Cusco is driven primarily by recent disaster impacts, vulnerable health status, and gender inequality. The table below summarizes the individual indicators within each socio-economic theme.

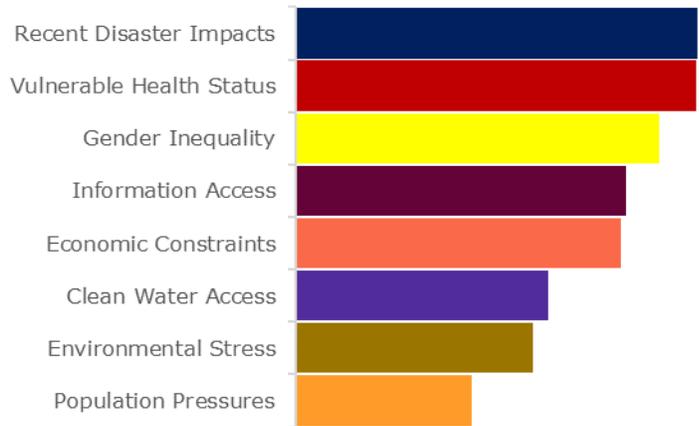


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	1.3 % of total regional area with irrigation-fed agriculture	6.6 % of total regional area with severe erosion				
	Vulnerable Health Status	29.7 Infant mortality rate per 1k births	73.2 Maternal deaths per 100k births	70.3 Average life expectancy (years) at birth	20.0 % of children under 5 years of age that are malnourished	3.5 % of population with 1 or more disability	
	Clean Water Vulnerability	88.5 % households with access to improved water	58.5 % households with access to flush toilets				
	Information Access Vulnerability	12.7 % of population 15yrs and older that are illiterate	9.2 Average years of schooling	80.4 % primary school enrollment	11.4 % households with internet	74.4 % households with television	90.7 % households with radio
	Economic Constraints	0.55 Ratio of dependents to working age population (15-64 years)	60.21 Ratio of average monthly household expenses to income	18.8 % of population monetarily impoverished			
	Gender Inequality	0.49 Proportion of female representatives in local government	0.69 Ratio of female to male secondary enrollment	0.90 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.7
% Average annual population change (2010-2015)



Recent Disaster Impacts

346.4
Average annual hazard-related deaths per 10k persons (2010-2014)

8.6
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.498, Rank = 11 of 25

Cusco has a moderate coping capacity relative to other regions (CC = 0.498). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Cusco is hindered primarily by its environmental and infrastructure (healthcare and transportation) capacities. The table below summarizes the individual indicators within each socio-economic theme.

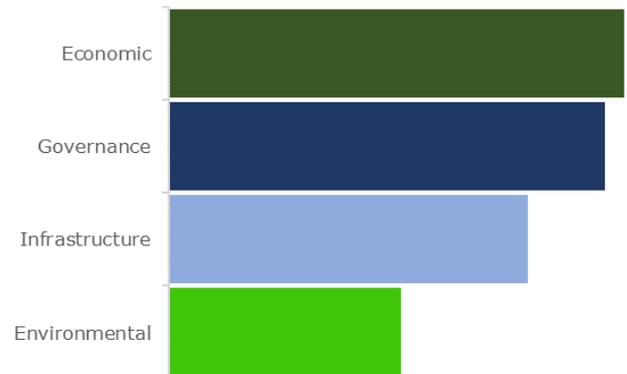


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,081
Average monthly income (\$)

\$18,000
Gross domestic product per capita



Governance

1.83
Registered cases of sexual violence per 10k persons

4.55
Registered cases of missing persons per 10k persons

0.008
Average annual number of social conflicts per 10k persons (active and resolved)

6,730
of voters per 10k persons (2014 election)



Environmental Capacity

9.4
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	13.6 # of hospital beds per 10k persons	23.6 # of nurses per 10k persons	14.8 # of physicians per 10k persons
	Communications Capacity	10.8 % households with fixed phone line	80.2 % households with mobile phone	
	Transportation Capacity	1.2 Port/airport density per 10,000 sq km	1,616.7 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.533, Rank = 11 of 25

Resilience is a function of both vulnerability and coping capacity. Cusco is slightly less resilient than the national average, and its moderate Resilience Score (R = 0.533) is due to its moderate vulnerability and moderate coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Cusco, 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



Recent Disaster Impacts



Transportation Capacity

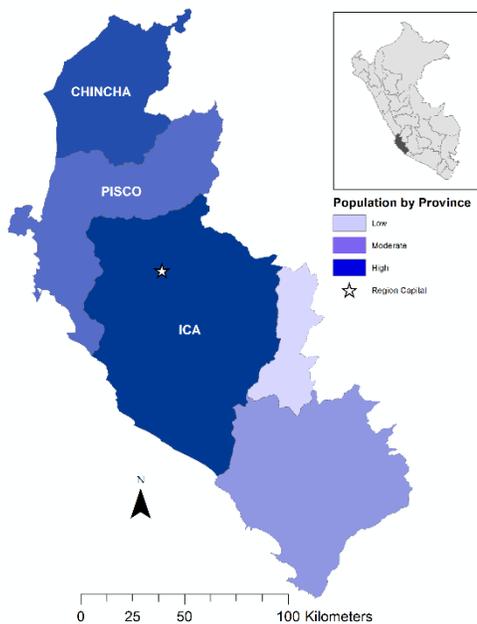
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Ica



Region Capital: Ica
Region Area: 22,588 km²

Ica is one of twenty-five regions in Peru. Located in southern coastal Peru, Ica is a desert region home to well-known archaeological destinations such as the Nazca Lines. Other than tourism, predominate economic activities include manufacturing and mining of oil, gas and minerals. Ica is the region's capital. As of 2015, the region's population was estimated at 787,170; with the highest percentage residing in the provinces of Ica, Chincha and Pisco. Relative to the rest of Peru, the population of Ica has higher than average life expectancy (77.0 years) and access to improved water (90.9%), with lower than average poverty (4.7%) and illiteracy (2.7%).



Multi-Hazard Risk (MHR) ¹

Score = 0.449, Rank = 17 of 25

Of the twenty-five regions of Peru, Ica ranks 17th in multi-hazard risk (MHR = 0.449). Table 1 outlines the individual components that contribute to risk. As shown, Ica's low multi-hazard risk is a function of its high multi-hazard exposure (MHE = 0.682), very low vulnerability (V = 0.347), and very high coping capacity (CC = 0.684). The ternary graph at right shows that Ica's exposure is significantly higher than the national average, while vulnerability and lack of coping capacity are significantly lower.

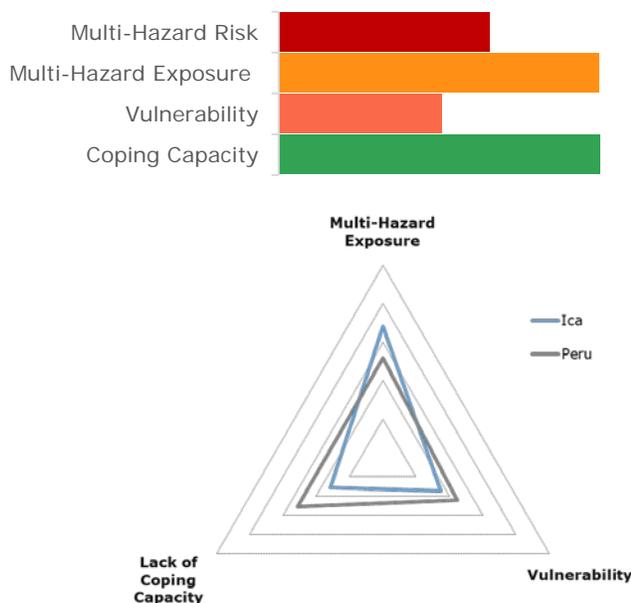


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
High		Very Low		Very High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.682	9	0.347	21	0.684	3

Multi-Hazard Exposure (MHE) ³

Score = 0.682, Rank = 9 of 25

Ica has very low multi-hazard exposure relative to other regions of Peru (MHE = 0.682). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

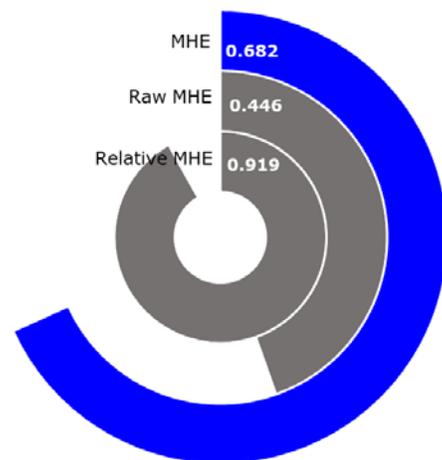
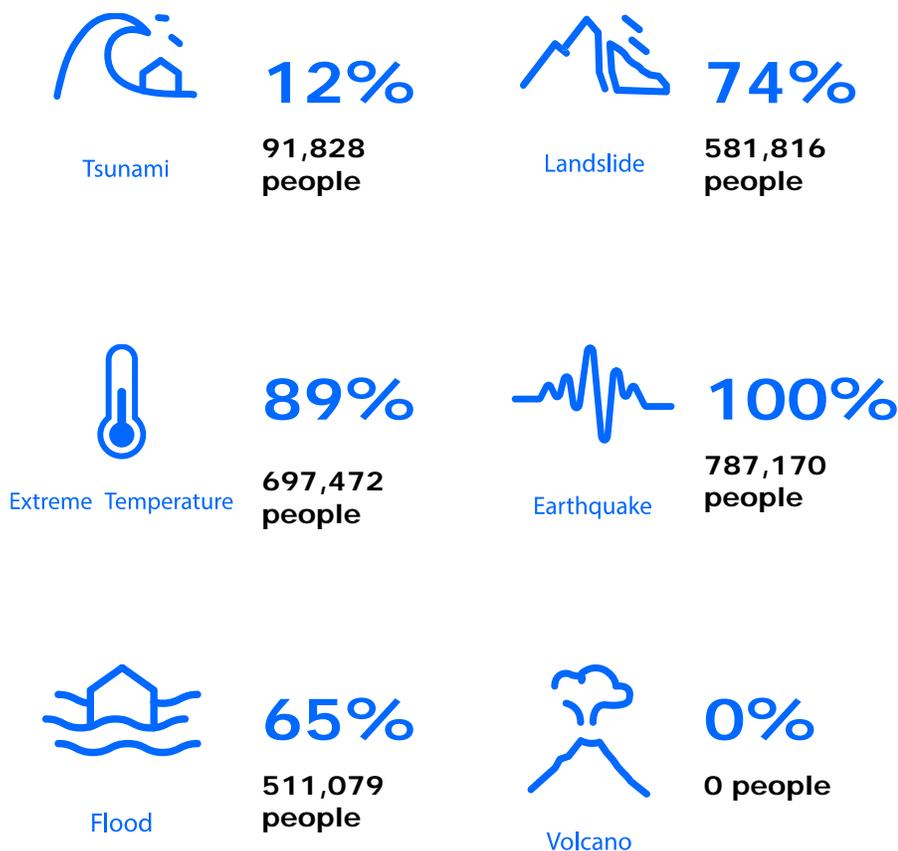


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.347, Rank = 21 of 25

Ica has very low vulnerability relative to other Peruvian regions (V = 0.347). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Ica is driven primarily by environmental stress, population pressures, and gender inequality. The table below summarizes the individual indicators within each socio-economic theme.

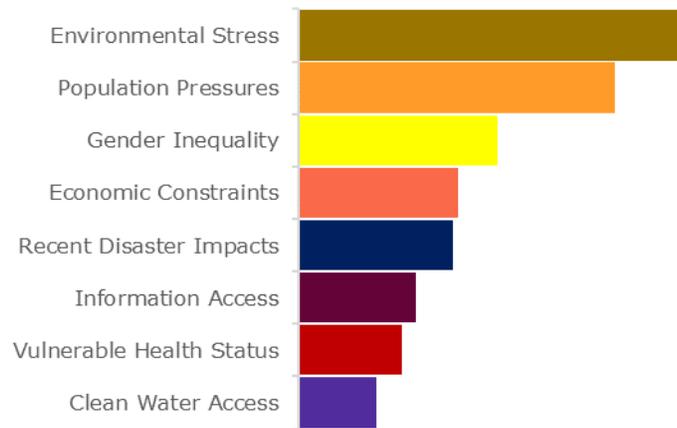


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	10.3 % of total regional area with irrigation-fed agriculture	16.4 % of total regional area with severe erosion				
	Vulnerable Health Status	10.0 Infant mortality rate per 1k births	32.4 Maternal deaths per 100k births	77.0 Average life expectancy (years) at birth	7.7 % of children under 5 years of age that are malnourished	5.5 % of population with 1 or more disability	
	Clean Water Vulnerability	90.9 % households with access to improved water	80.9 % households with access to flush toilets				
	Information Access Vulnerability	2.7 % of population 15yrs and older that are illiterate	10.7 Average years of schooling	80.0 % primary school enrollment	25.2 % households with internet	93.3 % households with television	81.6 % households with radio
	Economic Constraints	0.52 Ratio of dependents to working age population (15-64 years)	58.21 Ratio of average monthly household expenses to income	4.7 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.86 Ratio of female to male secondary enrollment	0.78 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.0
% Average annual population change (2010-2015)



Recent Disaster Impacts

275.5
Average annual hazard-related deaths per 10k persons (2010-2014)

0.8
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.684, Rank = 3 of 25

Ica has a very high coping capacity relative to other regions (CC = 0.684). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Ica is hindered primarily by its environmental and infrastructure (especially transportation) capacities. The table below summarizes the individual indicators within each socio-economic theme.

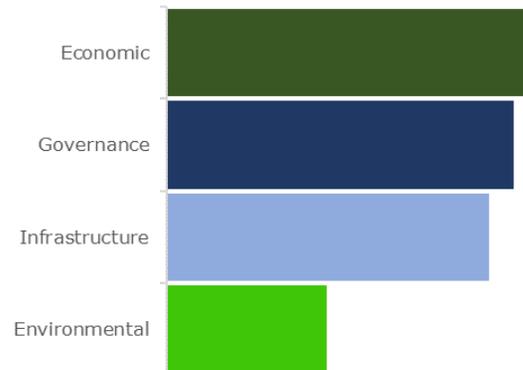


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,187
Average monthly income (\$)

\$24,059
Gross domestic product per capita



Governance

1.87
Registered cases of sexual violence per 10k persons

0.49
Registered cases of missing persons per 10k persons

0.005
Average annual number of social conflicts per 10k persons (active and resolved)

7,224
of voters per 10k persons (2014 election)



Environmental Capacity

11.0
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	18.8 # of hospital beds per 10k persons	32.1 # of nurses per 10k persons	24.3 # of physicians per 10k persons
	Communications Capacity	25.5 % households with fixed phone line	88.7 % households with mobile phone	
	Transportation Capacity	2.7 Port/airport density per 10,000 sq km	1,546.5 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.668, Rank = 4 of 25

Resilience is a function of both vulnerability and coping capacity. Ica is significantly more resilient than the national average, and its very high Resilience Score (R = 0.668) is due to its very low vulnerability and very high coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Ica, 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.



Environmental Stress



Population Pressures



Transportation Capacity

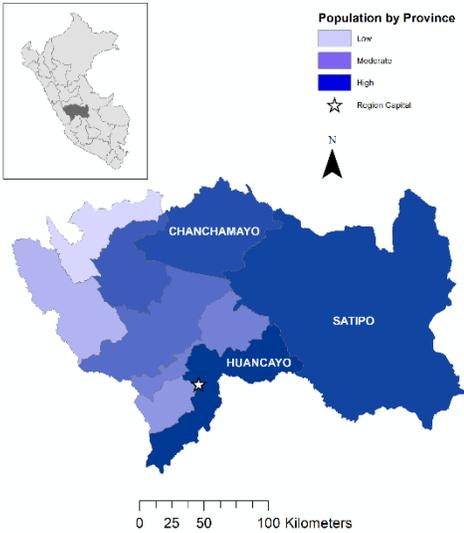
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.

A photograph of a large, snow-capped mountain peak, likely in the Andes, reflected in a calm body of water. The sky is a clear, deep blue. The foreground shows a grassy plain and the water's surface, which perfectly mirrors the mountain and sky above.

Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Junín



Region Capital: Huancayo
Region Area: 46,276 km²

Junín is one of twenty-five regions in Peru. Located in the interior of central Peru, mining, service industries, and commerce are the predominate economic activities. Huancayo is the region’s capital. As of 2015, the region’s population was estimated at 1,350,783; with the highest percentage of its population residing in the provinces of Huancayo, Chanchamayo and Satipo. Relative to the rest of Peru, the population of Junín has lower than average life expectancy (71.9 years), higher than average access to improved water (84.9%), and lower than average poverty (19.5%) and illiteracy (6.6%).



Multi-Hazard Risk (MHR) ¹

Score = 0.599, Rank = 2 of 25

Of the twenty-five regions of Peru, Junín ranks 2nd in multi-hazard risk (MHR = 0.599). Table 1 outlines the individual components that contribute to risk. As shown, Junín’s very high multi-hazard risk is a function of its high multi-hazard exposure (MHE = 0.795), moderate vulnerability (V = 0.446), and low coping capacity (CC = 0.444). The ternary graph at right shows that Junín’s exposure is significantly higher than the national average, while vulnerability and lack of coping capacity are similar to the national averages for these components.

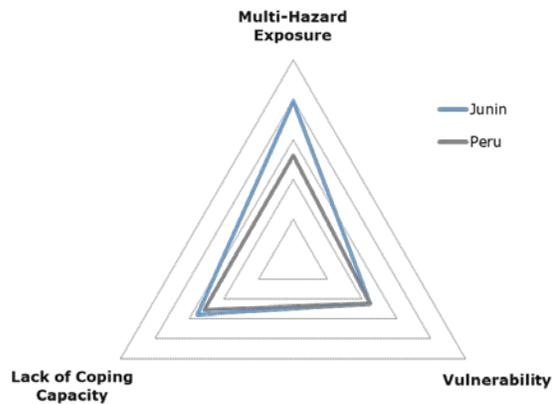
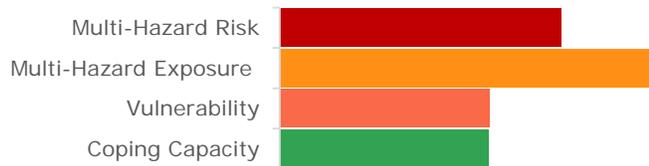


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very High		Medium		Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.795	2	0.446	12	0.444	16

Multi-Hazard Exposure (MHE) ³

Score = 0.795, Rank = 2 of 25

Junín has very high multi-hazard exposure relative to other regions of Peru (MHE = 0.795). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

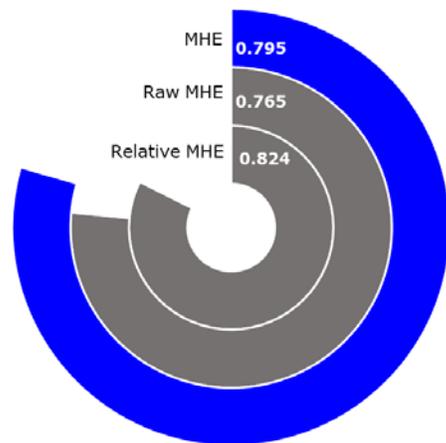
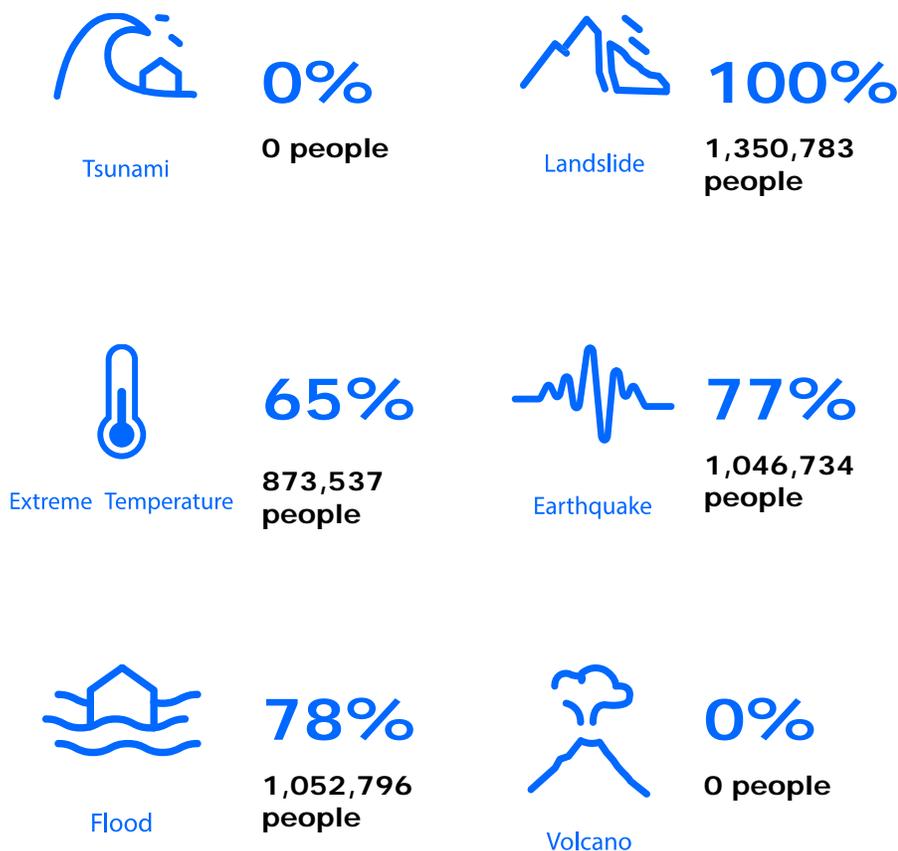


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.446, Rank = 12 of 25

Junín has moderate vulnerability relative to other Peruvian regions (V = 0.446). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Junín is driven primarily by population pressures, economic constraints, and information access. The table below summarizes the individual indicators within each socio-economic theme.

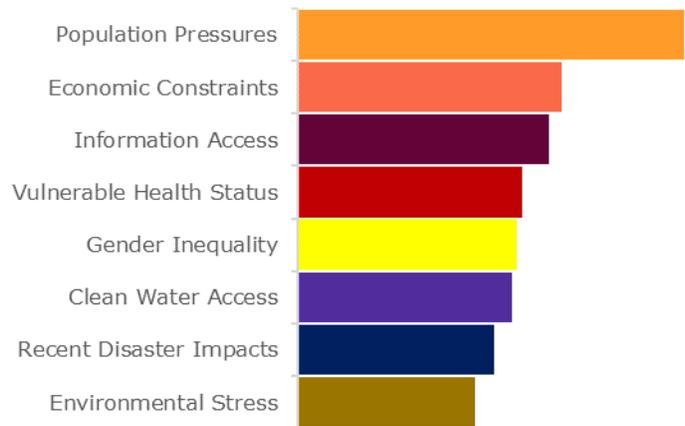


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	1.4 % of total regional area with irrigation-fed agriculture	6.2 % of total regional area with severe erosion				
	Vulnerable Health Status	18.0 Infant mortality rate per 1k births	65.2 Maternal deaths per 100k births	71.9 Average life expectancy (years) at birth	24.2 % of children under 5 years of age that are malnourished	3.4 % of population with 1 or more disability	
	Clean Water Vulnerability	84.9 % households with access to improved water	58.5 % households with access to flush toilets				
	Information Access Vulnerability	6.6 % of population 15yrs and older that are illiterate	9.6 Average years of schooling	68.0 % primary school enrollment	11.5 % households with internet	82.8 % households with television	83.4 % households with radio
	Economic Constraints	0.60 Ratio of dependents to working age population (15-64 years)	58.49 Ratio of average monthly household expenses to income	19.5 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.74 Ratio of female to male secondary enrollment	0.83 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

-1.2
% Average annual population change (2010-2015)



Recent Disaster Impacts

85.7 Average annual hazard-related deaths per 10k persons (2010-2014)

5.1 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.444, Rank = 16 of 25

Junín has a low coping capacity relative to other regions (CC = 0.444). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Junín is hindered primarily by its economic and environmental capacities. The table below summarizes the individual indicators within each socio-economic theme.

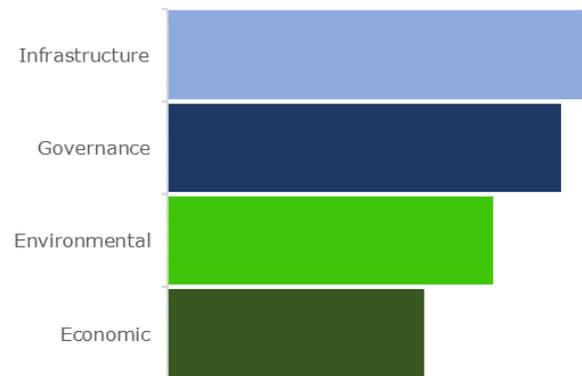


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,045 Average monthly income (\$)

\$10,915 Gross domestic product per capita



Governance

2.79 Registered cases of sexual violence per 10k persons

3.86 Registered cases of missing persons per 10k persons

0.005 Average annual number of social conflicts per 10k persons (active and resolved)

6,354 # of voters per 10k persons (2014 election)



Environmental Capacity

13.2 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	13.6 # of hospital beds per 10k persons	23.1 # of nurses per 10k persons	12.8 # of physicians per 10k persons
	Communications Capacity	14.7 % households with fixed phone line	84.5 % households with mobile phone	
	Transportation Capacity	3.3 Port/airport density per 10,000 sq km	1,681.3 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.499, Rank = 16 of 25

Resilience is a function of both vulnerability and coping capacity. Junín is less resilient than the national average, and its low Resilience Score (R = 0.499) is due to its moderate vulnerability and low coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Junín, 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.



Economic Constraints



Population Pressures



Governance

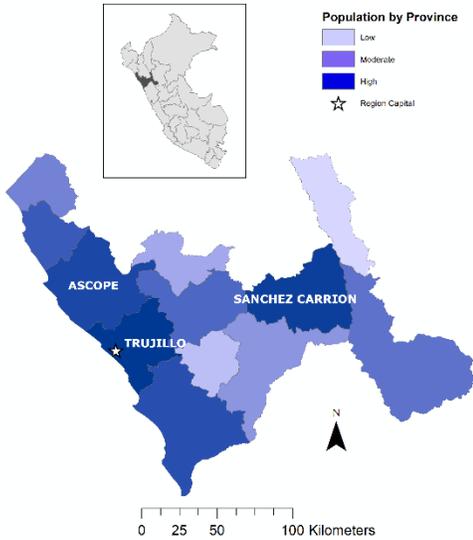
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: La Libertad



Region Capital: Trujillo
 Region Area: 25,883 km²

La Libertad is one of twenty-five regions in Peru. Located in northern coastal Peru, La Libertad spans the Cordillera Negra and includes the well-known archaeological ruins of pre-Incan Moche and Chan-Chan cultures. Manufacturing, other services (e.g., tourism), and agriculture are predominate economic activities. Trujillo is the region’s capital. As of 2015, the region’s population was estimated at 1,859,640; with the highest percentage of its population residing in the provinces of Ascope, Sanchez Carrion and Trujillo. Relative to the rest of Peru, the population of La Libertad has higher than average life expectancy (75.6 years), higher than average access to improved water (87.8%), poverty (29.5%) higher than the national average, and lower than average illiteracy (6.0%).



Multi-Hazard Risk (MHR) ¹

Score = 0.591, Rank = 5 of 25

Of the twenty-five regions of Peru, La Libertad ranks 5th in multi-hazard risk (MHR = 0.591). Table 1 outlines the individual components that contribute to risk. As shown, La Libertad’s very high multi-hazard risk is a function of its very high multi-hazard exposure (MHE = 0.857), high vulnerability (V = 0.475), and high coping capacity (CC = 0.558). The ternary graph at right shows that La Libertad’s exposure is significantly higher than the national average, while vulnerability is similar and lack of coping capacity is slightly lower.

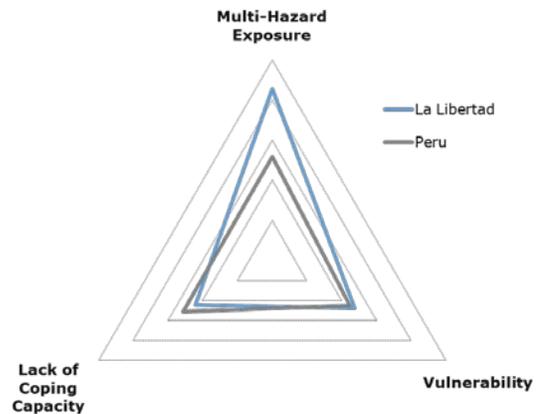


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very High		High		High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.857	1	0.475	10	0.558	6

Multi-Hazard Exposure (MHE) ³

Score = 0.857, Rank = 1 of 25

La Libertad has very high multi-hazard exposure relative to other regions of Peru (MHE = 0.857). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

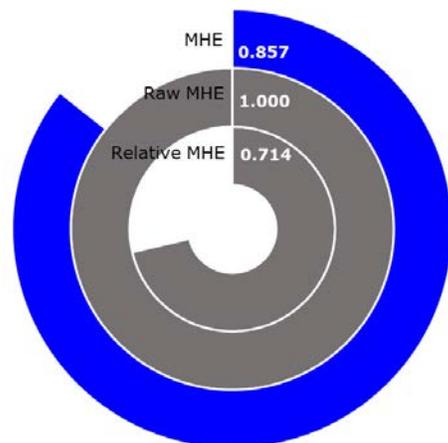
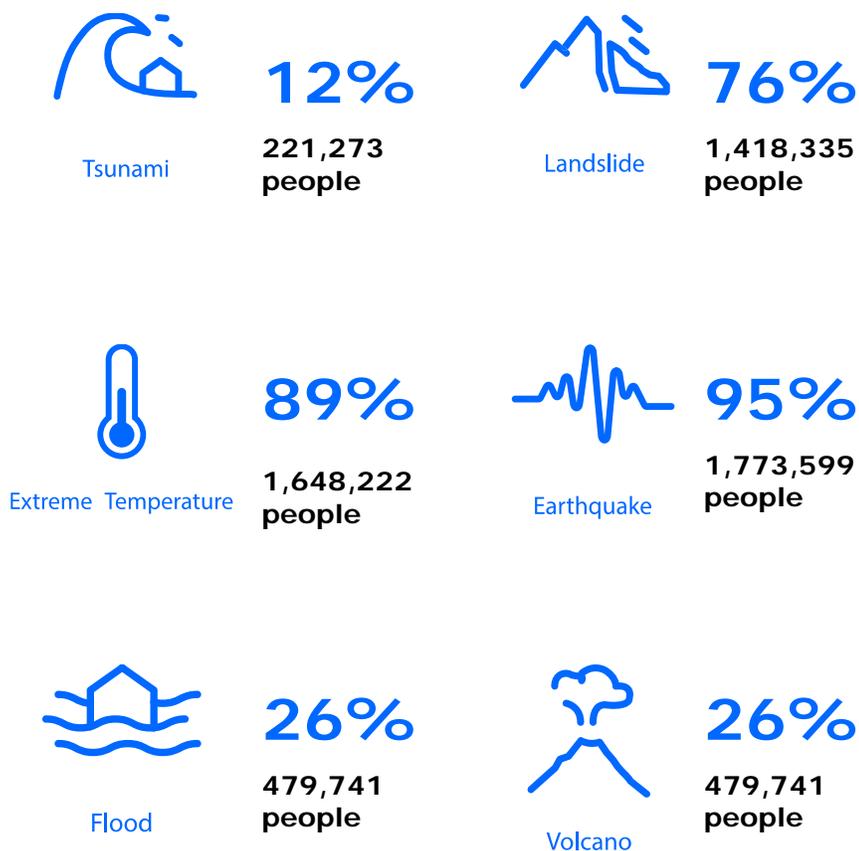


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.475, Rank = 10 of 25

La Libertad has high vulnerability relative to other Peruvian regions (V = 0.475). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in La Libertad is driven primarily by environmental stress, population pressures and economic constraints. The table below summarizes the individual indicators within each socio-economic theme.

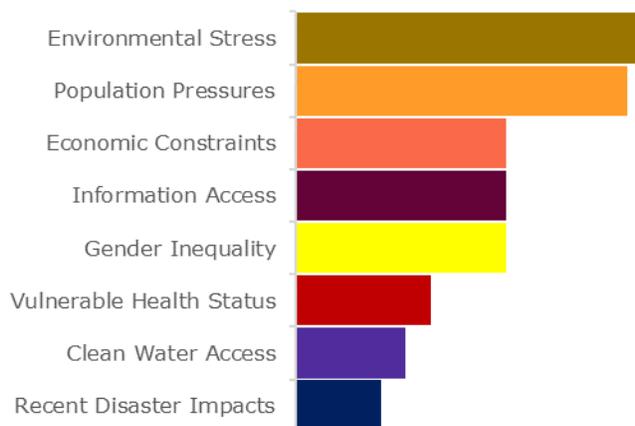


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	10.6 % of total regional area with irrigation-fed agriculture	29.4 % of total regional area with severe erosion				
	Vulnerable Health Status	14.4 Infant mortality rate per 1k births	70.9 Maternal deaths per 100k births	75.6 Average life expectancy (years) at birth	22.1 % of children under 5 years of age that are malnourished	4.0 % of population with 1 or more disability	
	Clean Water Vulnerability	87.8 % households with access to improved water	71.9 % households with access to flush toilets				
	Information Access Vulnerability	6.0 % of population 15yrs and older that are illiterate	9.4 Average years of schooling	70.4 % primary school enrollment	21.6 % households with internet	81.7 % households with television	73.1 % households with radio
	Economic Constraints	0.54 Ratio of dependents to working age population (15-64 years)	58.22 Ratio of average monthly household expenses to income	29.5 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.90 Ratio of female to male secondary enrollment	0.76 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.3
% Average annual population change (2010-2015)



Recent Disaster Impacts

32.8 Average annual hazard-related deaths per 10k persons (2010-2014)

1.5 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.558, Rank = 6 of 25

La Libertad has a high coping capacity relative to other regions (CC = 0.558). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in La Libertad is hindered primarily by its environmental and economic capacities. The table below summarizes the individual indicators within each socio-economic theme.

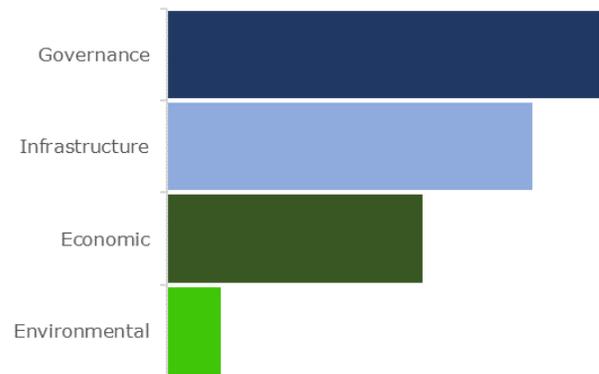


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,092 Average monthly income (\$)

\$13,921 Gross domestic product per capita



Governance

1.76 Registered cases of sexual violence per 10k persons

0.19 Registered cases of missing persons per 10k persons

0.004 Average annual number of social conflicts per 10k persons (active and resolved)

6,794 # of voters per 10k persons (2014 election)



Environmental Capacity

2.9 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	13.8 # of hospital beds per 10k persons	21.4 # of nurses per 10k persons	22.8 # of physicians per 10k persons
	Communications Capacity	31.5 % households with fixed phone line	84.5 % households with mobile phone	
	Transportation Capacity	1.2 Port/airport density per 10,000 sq km	2,821.5 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.542, Rank = 10 of 25

Resilience is a function of both vulnerability and coping capacity. La Libertad is more resilient than the national average, and its high Resilience Score (R = 0.542) is due to its high vulnerability countered by high coping capacity. The region's baseline indicators suggest a focus for resilience-building efforts. In La Libertad, the thematic areas with the weakest indicator scores and rankings 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.



Environmental Stress



Population Pressures



Environmental Capacity

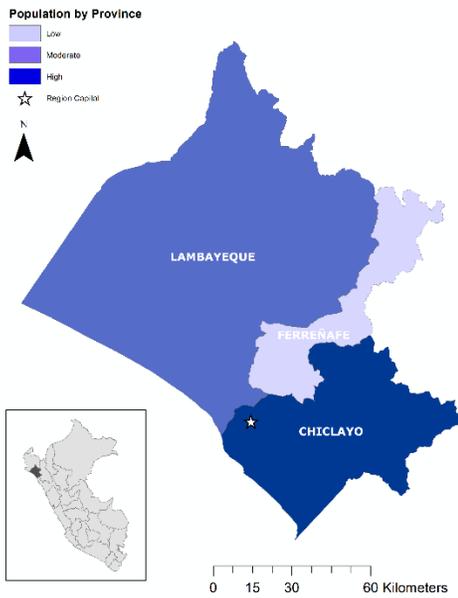
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region's normal function.

A photograph of a large, snow-capped mountain peak, likely in the Andes, reflected in a calm body of water. The sky is a clear, deep blue. The foreground shows a grassy plain and the water's surface, which perfectly mirrors the mountain and sky.

Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Lambayeque



Region Capital: Chiclayo
 Region Area: 14,524 km²

Lambayeque is one of twenty-five regions in Peru. Located in northern coastal Peru, Lambayeque is home to many of Peru’s pre-Incan ruins, though less a tourism destination than other parts of the country. Predominate economic activities include service industries, commerce and manufacturing. The region’s capital is Chiclayo. As of 2015, the region’s population was estimated at 1,260,650; with the highest percentage of its population residing in the province of Chiclayo. Relative to the rest of Peru, the population of Lambayeque has higher than average life expectancy (76.1 years) and access to improved water (88.1%), while having lower than average illiteracy (6.3%) and poverty (24.7%).



Multi-Hazard Risk (MHR) ¹

Score = 0.515, Rank = 9 of 25

Of the twenty-five regions of Peru, Lambayeque ranks 9th in multi-hazard risk (MHR = 0.515). Table 1 outlines the individual components that contribute to risk. As shown, Lambayeque’s high multi-hazard risk is a function of its moderate multi-hazard exposure (MHE = 0.594), moderate vulnerability (V = 0.452), and high coping capacity (CC = 0.501). The ternary graph at right shows that Lambayeque’s exposure is slightly higher than the national average, while vulnerability and lack of coping capacity are similar.

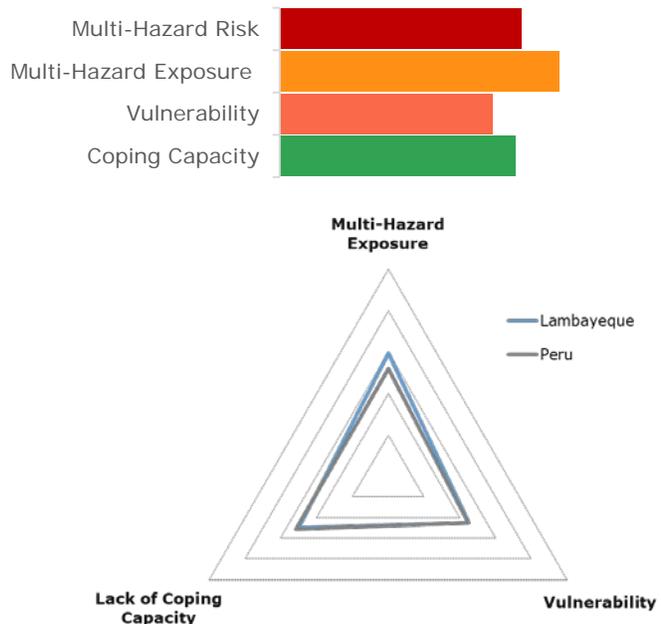


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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		High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.594	13	0.452	11	0.501	10

Multi-Hazard Exposure (MHE) ³

Score = 0.594, Rank = 13 of 25

Lambayeque has moderate multi-hazard exposure relative to other regions of Peru (MHE = 0.594). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

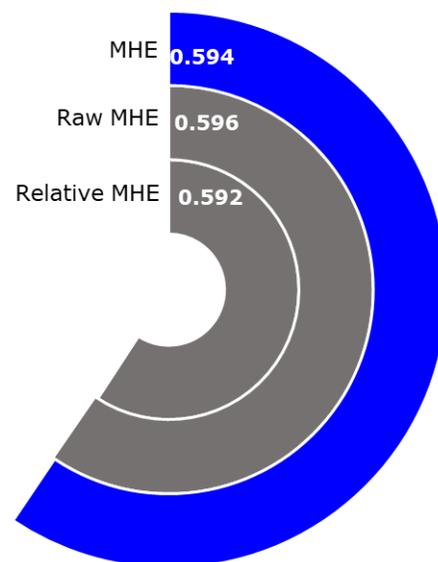
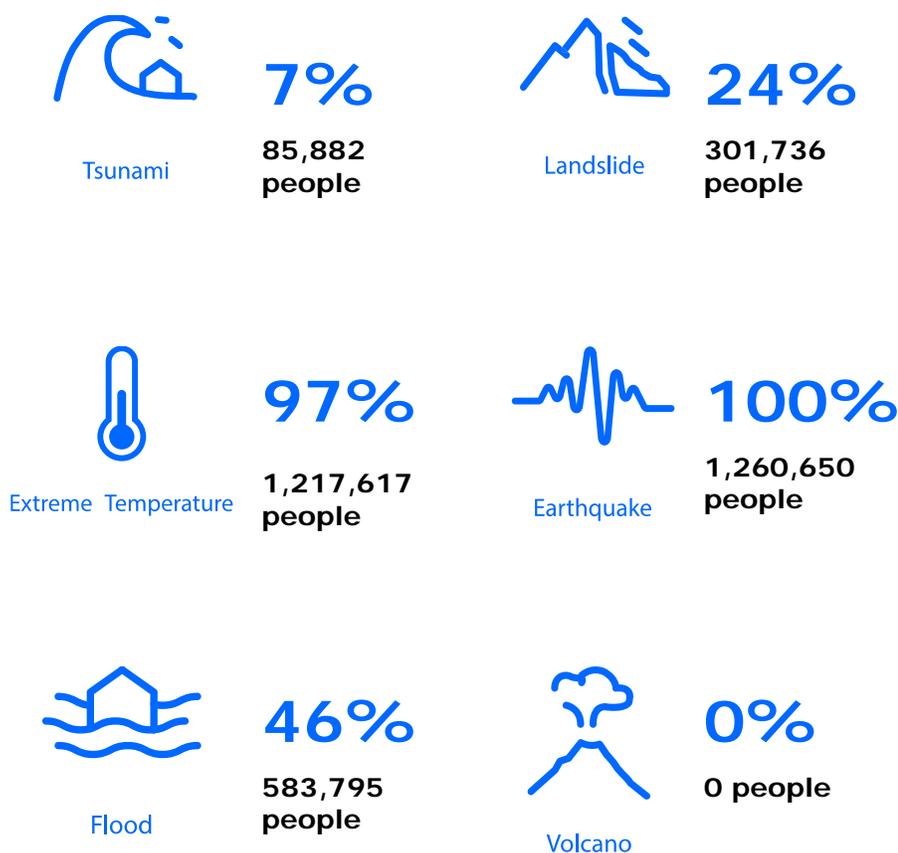


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.452, Rank = 11 of 25

Lambayeque has moderate vulnerability relative to other Peruvian regions (V = 0.452). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Lambayeque is driven primarily by environmental stress, economic constraints, and gender inequality. The table below summarizes the individual indicators within each socio-economic theme.

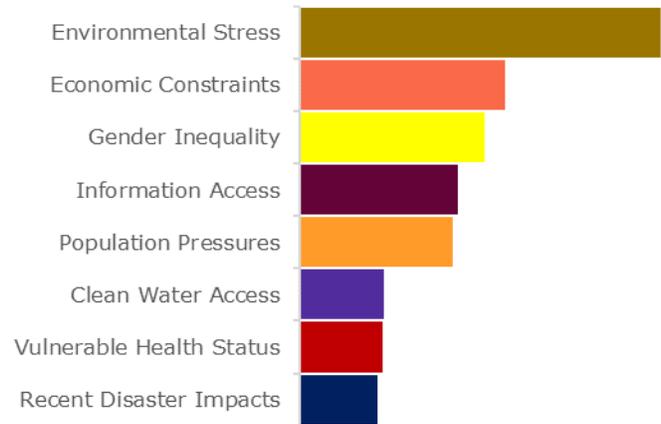


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	16.6 % of total regional area with irrigation-fed agriculture	42.5 % of total regional area with severe erosion				
	Vulnerable Health Status	17.1 Infant mortality rate per 1k births	49.5 Maternal deaths per 100k births	76.1 Average life expectancy (years) at birth	14.2 % of children under 5 years of age that are malnourished	3.5 % of population with 1 or more disability	
	Clean Water Vulnerability	88.1 % households with access to improved water	74.0 % households with access to flush toilets				
	Information Access Vulnerability	6.3 % of population 15yrs and older that are illiterate	9.5 Average years of schooling	69.2 % primary school enrollment	23.9 % households with internet	90.3 % households with television	75.3 % households with radio
	Economic Constraints	0.53 Ratio of dependents to working age population (15-64 years)	69.20 Ratio of average monthly household expenses to income	24.7 % of population monetarily impoverished			
	Gender Inequality	0.51 Proportion of female representatives in local government	0.80 Ratio of female to male secondary enrollment	0.78 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.9
% Average annual population change (2010-2015)



Recent Disaster Impacts

60.3 Average annual hazard-related deaths per 10k persons (2010-2014)
1.4 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.501, Rank = 10 of 25

Lambayeque has a high coping capacity relative to other regions (CC = 0.501). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Lambayeque is hindered primarily by its environmental and economic capacities. The table below summarizes the individual indicators within each socio-economic theme.

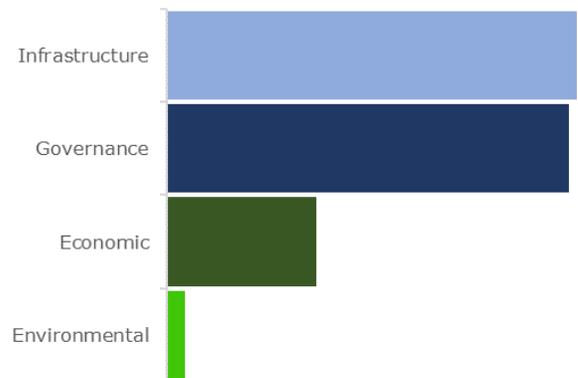


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$906 Average monthly income (\$)
\$10,554 Gross domestic product per capita



Governance

1.42 Registered cases of sexual violence per 10k persons
3.73 Registered cases of missing persons per 10k persons
0.002 Average annual number of social conflicts per 10k persons (active and resolved)
6,864 # of voters per 10k persons (2014 election)



Environmental Capacity

1.0 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	14.8 # of hospital beds per 10k persons	26.1 # of nurses per 10k persons	17.3 # of physicians per 10k persons
	Communications Capacity	27.5 % households with fixed phone line	88.1 % households with mobile phone	
	Transportation Capacity	8.3 Port/airport density per 10,000 sq km	2,234.1 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.524, Rank = 13 of 25

Resilience is a function of both vulnerability and coping capacity. Lambayeque’s resilience is near the national average, and its moderate Resilience Score (R = 0.524) is due to its moderate vulnerability and high coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Lambayeque, 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.



Environmental Stress



Economic Constraints



Environmental Capacity

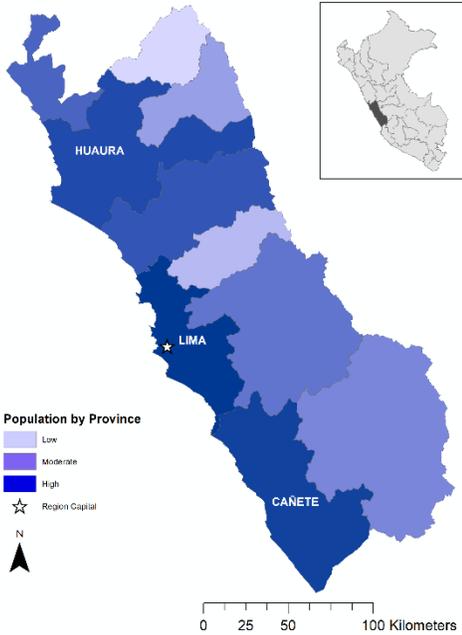
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Lima



Region Capital: Lima
Region Area: 36,743 km²

Lima is one of twenty-five regions in Peru. Located in central coastal Peru, Lima is the national capital of Peru. The region is a hub of commerce and government, as well as the sink for net population growth due in part to rural-urban migration. Manufacturing and commerce are its predominate economic activities. As of 2015, the region's population was estimated at 9,823,251; with the highest percentage of its population residing in the provinces of Lima, Cañete and Huara. Relative to the rest of Peru, the population of Lima has higher than average life expectancy (77.2 years) and access to improved water (93.0%), while having lower than average illiteracy (2.5%) and poverty (13.1%).



Multi-Hazard Risk (MHR) ¹

Score = 0.415, Rank = 23 of 25

Of the twenty-five regions of Peru, Lima ranks 23rd in multi-hazard risk (MHR = 0.415). Table 1 outlines the individual components that contribute to risk. As shown, Lima's very low multi-hazard risk is a function of its high multi-hazard exposure (MHE = 0.699), countered by very low vulnerability (V = 0.345), and very high coping capacity (CC = 0.799). The ternary graph at right shows that Lima's exposure is higher than the national average, vulnerability is lower than average, and lack of coping capacity is significantly below the national average for this component.

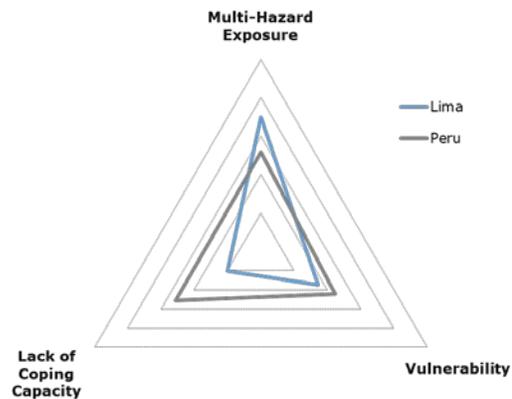
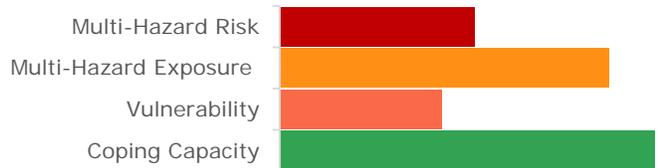


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
High		Very Low		Very High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.699	7	0.345	23	0.799	1

Multi-Hazard Exposure (MHE) ³

Score = 0.699, Rank = 7 of 25

Lima has high multi-hazard exposure relative to other regions of Peru (MHE = 0.699). Percentages of the region’s population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

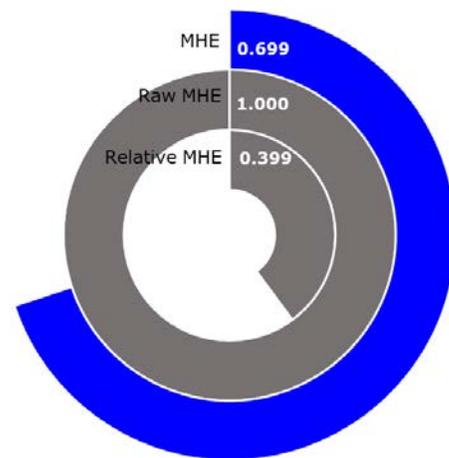
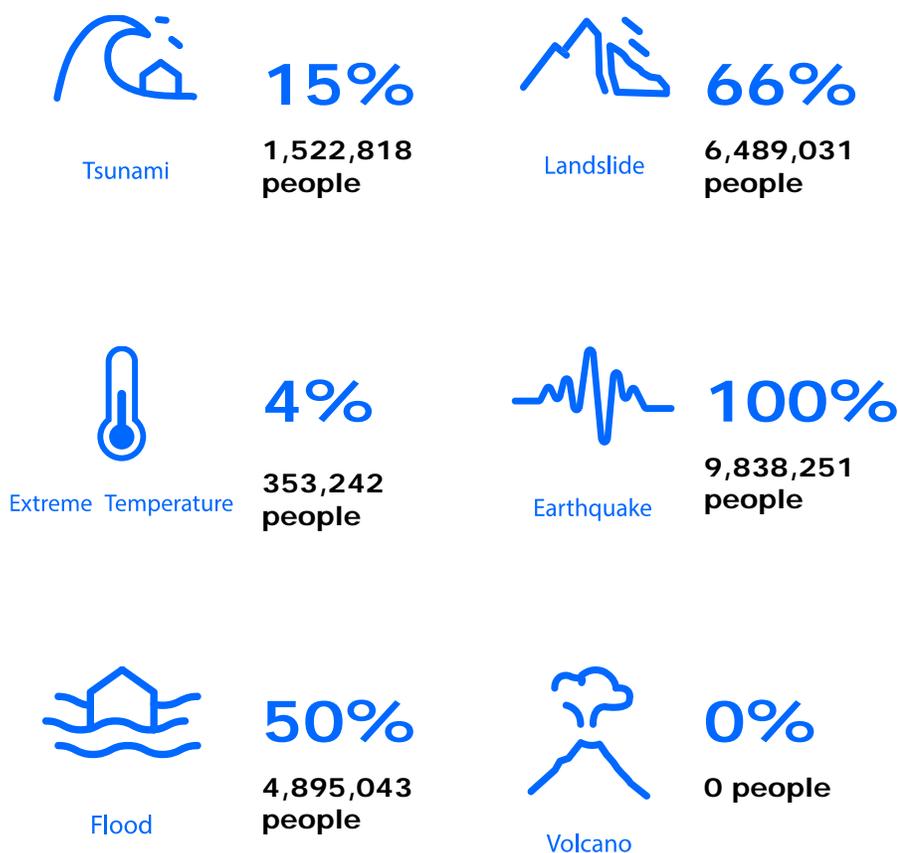


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.345, Rank = 23 of 25

Lima has very low vulnerability relative to other Peruvian regions ($V = 0.345$). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Lima is driven primarily by population pressures, environmental stress, and gender inequality. The table below summarizes the individual indicators within each socio-economic theme.

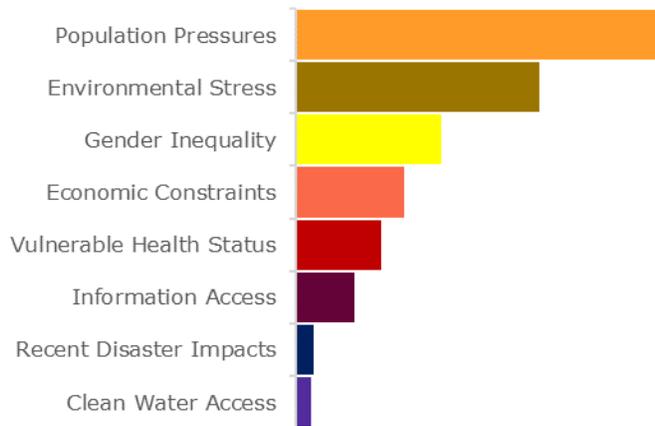


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	10.9 % of total regional area with irrigation-fed agriculture	12.5 % of total regional area with severe erosion				
	Vulnerable Health Status	10.3 Infant mortality rate per 1k births	24.0 Maternal deaths per 100k births	77.2 Average life expectancy (years) at birth	5.1 % of children under 5 years of age that are malnourished	6.7 % of population with 1 or more disability	
	Clean Water Vulnerability	93.0 % households with access to improved water	90.5 % households with access to flush toilets				
	Information Access Vulnerability	2.5 % of population 15yrs and older that are illiterate	11.0 Average years of schooling	72.7 % primary school enrollment	42.2 % households with internet	96.2 % households with television	79.7 % households with radio
	Economic Constraints	0.47 Ratio of dependents to working age population (15-64 years)	49.31 Ratio of average monthly household expenses to income	13.1 % of population monetarily impoverished			
	Gender Inequality	0.51 Proportion of female representatives in local government	0.86 Ratio of female to male secondary enrollment	0.77 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.5
% Average annual population change (2010-2015)



Recent Disaster Impacts

5.2 Average annual hazard-related deaths per 10k persons (2010-2014)

0.1 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.799, Rank = 1 of 25

Lima has a very high coping capacity relative to other regions (CC = 0.799). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Lima is hindered primarily by its environmental capacity and governance. The table below summarizes the individual indicators within each socio-economic theme.

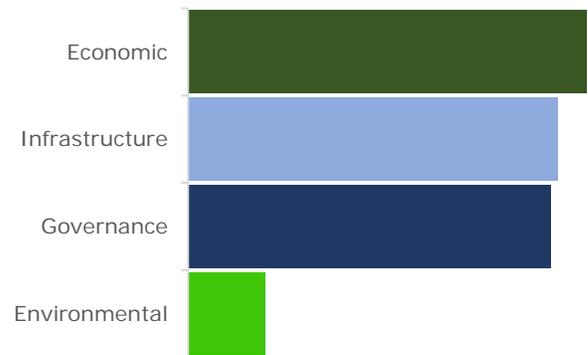


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,620 Average monthly income (\$)

\$24,022 Gross domestic product per capita



Governance

0.30 Registered cases of sexual violence per 10k persons

0.21 Registered cases of missing persons per 10k persons

0.001 Average annual number of social conflicts per 10k persons (active and resolved)

7,529 # of voters per 10k persons (2014 election)



Environmental Capacity

5.8 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	18.8 # of hospital beds per 10k persons	29.8 # of nurses per 10k persons	36.6 # of physicians per 10k persons
	Communications Capacity	50.4 % households with fixed phone line	90.3 % households with mobile phone	
	Transportation Capacity	10.1 Port/airport density per 10,000 sq km	2,216.4 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.727, Rank = 1 of 25

Resilience is a function of both vulnerability and coping capacity. Lima’s resilience is significantly higher than the national average, and its very high Resilience Score (R = 0.727) is due to its very low vulnerability and very high coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Lima, 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.



Environmental Stress



Population Pressures



Environmental Capacity

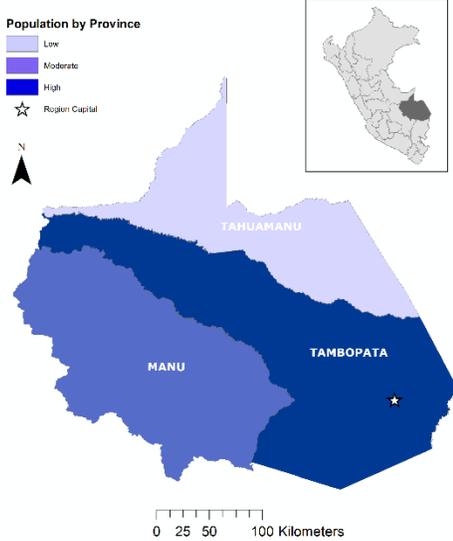
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Madre de Dios



Region Capital: Puerto Maldonado
 Region Area: 88,964 km²

Madre de Dios is one of twenty-five regions in Peru. Located in the interior of southeast Peru, Madre de Dios is bordered by Brazil and Bolivia, and has the lowest population density of any department in Peru. Mineral extraction is the primary economic activity, followed by service industries and commerce. Puerto Maldonado is the region’s capital. As of 2015, the region’s population was estimated at 137,316; with the highest percentage residing in the province of Tambopata. Relative to the rest of Peru, the population of Madre de Dios has lower than average life expectancy (72.2 years), though it has higher than average access to improved water (82.6%), lower illiteracy (4.2%) and lower poverty (3.8%).



Multi-Hazard Risk (MHR) ¹

Score = 0.369, Rank = 25 of 25

Of the twenty-five regions of Peru, Madre de Dios ranks 25th in multi-hazard risk (MHR = 0.369). Table 1 outlines the individual components that contribute to risk. As shown, Madre de Dios’ very low multi-hazard risk is a function of its very low multi-hazard exposure (MHE = 0.268), low vulnerability (V = 0.386), and high coping capacity (CC = 0.546). The ternary graph at right shows that Madre de Dios’ exposure is significantly lower than the national average, with vulnerability and lack of coping capacity just slightly lower than the national average for these components.

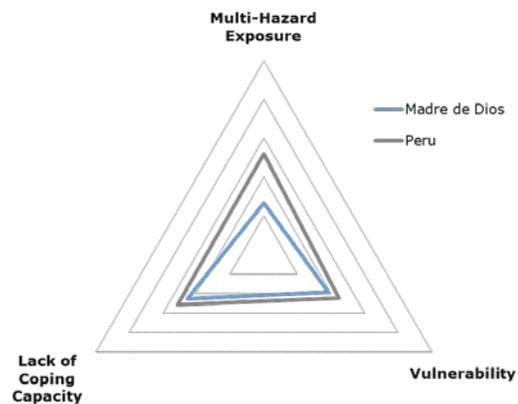
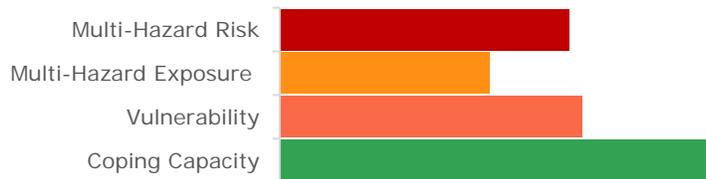


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

Components of Multi-Hazard Risk (MHR) ²

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

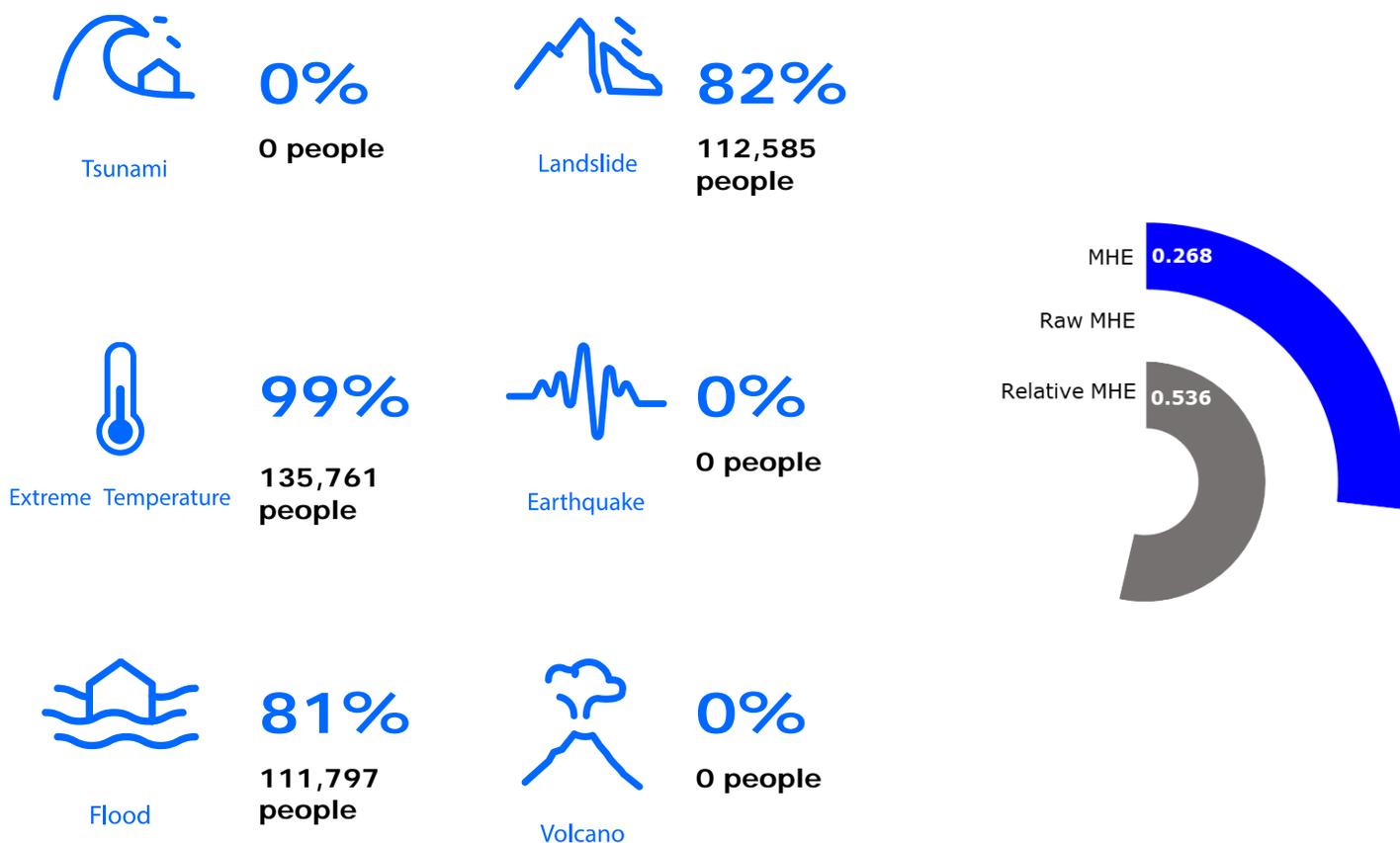
Multi-Hazard Exposure (MHE)		Vulnerability (V)		Coping Capacity (CC)	
Very Low		Low		High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.268	21	0.386	18	0.546	7

Multi-Hazard Exposure (MHE) ³

Score = 0.268, Rank = 21 of 25

Madre de Dios has very low multi-hazard exposure relative to other regions of Peru (MHE = 0.268). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.



² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.386, Rank = 18 of 25

Madre de Dios has low vulnerability relative to other Peruvian regions (V = 0.386). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Madre de Dios is driven primarily by population pressures, clean water access, and vulnerable health status. The table below summarizes the individual indicators within each socio-economic theme.

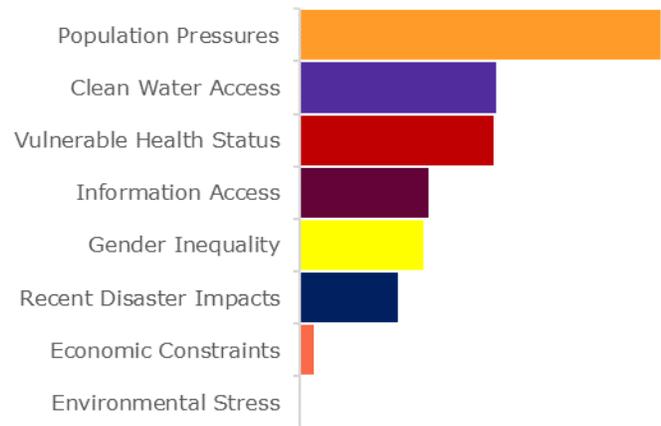


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	0 % of total regional area with irrigation-fed agriculture	0 % of total regional area with severe erosion				
	Vulnerable Health Status	22.0 Infant mortality rate per 1k births	163.2 Maternal deaths per 100k births	72.2 Average life expectancy (years) at birth	11.6 % of children under 5 years of age that are malnourished	3.7 % of population with 1 or more disability	
	Clean Water Vulnerability	82.6 % households with access to improved water	43.0 % households with access to flush toilets				
	Information Access Vulnerability	4.2 % of population 15yrs and older that are illiterate	9.6 Average years of schooling	89.2 % primary school enrollment	13.4 % households with internet	86.2 % households with television	70.6 % households with radio
	Economic Constraints	0.48 Ratio of dependents to working age population (15-64 years)	40.31 Ratio of average monthly household expenses to income	3.8 % of population monetarily impoverished			
	Gender Inequality	0.43 Proportion of female representatives in local government	0.82 Ratio of female to male secondary enrollment	0.79 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

2.5
% Average annual population change (2010-2015)



Recent Disaster Impacts

70.8 Average annual hazard-related deaths per 10k persons (2010-2014)

2.5 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.546, Rank = 7 of 25

Madre de Dios has a high coping capacity relative to other regions (CC = 0.546). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Madre de Dios is hindered primarily by its governance and infrastructure capacity (especially transportation). The table below summarizes the individual indicators within each socio-economic theme.

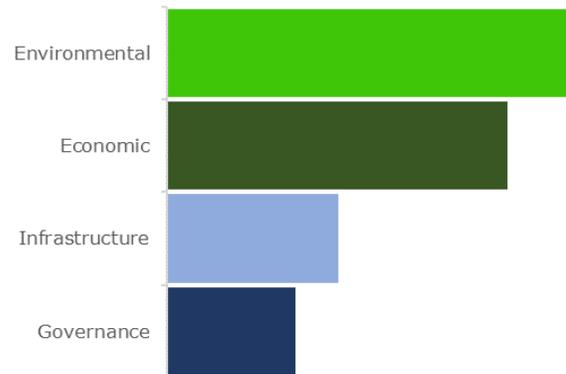


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,848 Average monthly income (\$)

\$18,829 Gross domestic product per capita



Governance

8.58 Registered cases of sexual violence per 10k persons

15.96 Registered cases of missing persons per 10k persons

0.007 Average annual number of social conflicts per 10k persons (active and resolved)

6,752 # of voters per 10k persons (2014 election)



Environmental Capacity

44.8 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	17.3 # of hospital beds per 10k persons	16.1 # of nurses per 10k persons	13.6 # of physicians per 10k persons
	Communications Capacity	11.2 % households with fixed phone line	87.1 % households with mobile phone	
	Transportation Capacity	0.7 Port/airport density per 10,000 sq km	380.9 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.580, Rank = 6 of 25

Resilience is a function of both vulnerability and coping capacity. Madre de Dios' resilience is higher than the national average, and its high Resilience Score (R = 0.580) is due to its low vulnerability and high coping capacity. The region's baseline indicators suggest a focus for resilience-building efforts. In Madre de Dios, 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.



Population Pressures



Governance



Transportation Capacity

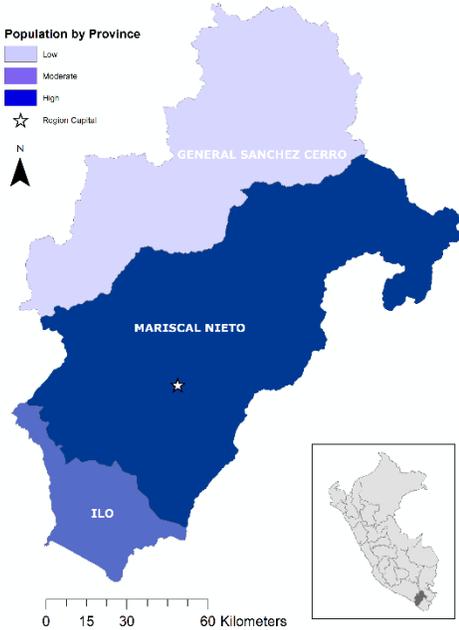
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region's normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Moquegua



Region Capital: Moquegua
Region Area: 17,286 km²

Moquegua is one of twenty-five regions in Peru, and is located in southern coastal Peru. Moquegua’s primary economic activities are manufacturing and mining of oil, gas and minerals. Moquegua is the regional capital. As of 2015, the region’s population was estimated at 180,477; with the highest percentage of its population residing in the province of Mariscal Nieto. Relative to the rest of Peru, the population of Moquegua has higher than average life expectancy (75.8 years) and access to improved water (96.4%), while having lower than average illiteracy (4.8%) and poverty (8.7%).



Multi-Hazard Risk (MHR) ¹

Score = 0.394, Rank = 24 of 25

Of the twenty-five regions of Peru, Moquegua ranks 24th in multi-hazard risk (MHR = 0.394). Table 1 outlines the individual components that contribute to risk. As shown, Moquegua’s very low multi-hazard risk is a function of its low multi-hazard exposure (MHE = 0.421), low vulnerability (V = 0.356), and very high coping capacity (CC = 0.594). The ternary graph at right shows that Moquegua’s exposure, vulnerability and lack of coping capacity are all lower than the national averages for these components.

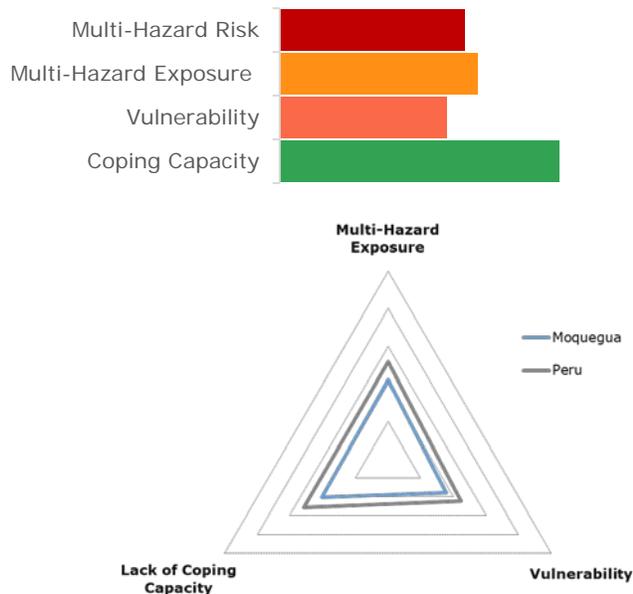


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Low		Low		Very High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.421	16	0.356	20	0.594	5

Multi-Hazard Exposure (MHE) ³

Score = 0.421, Rank = 16 of 25

Moquegua has low multi-hazard exposure relative to other regions of Peru (MHE = 0.421). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

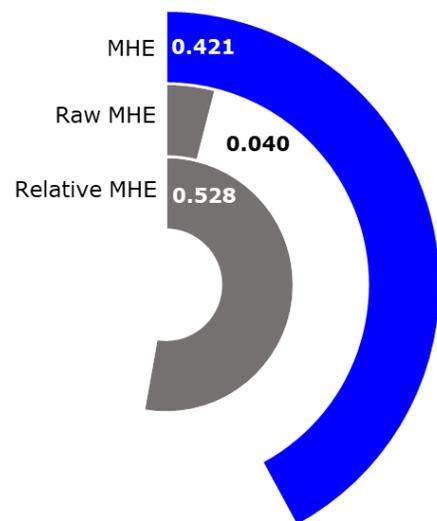
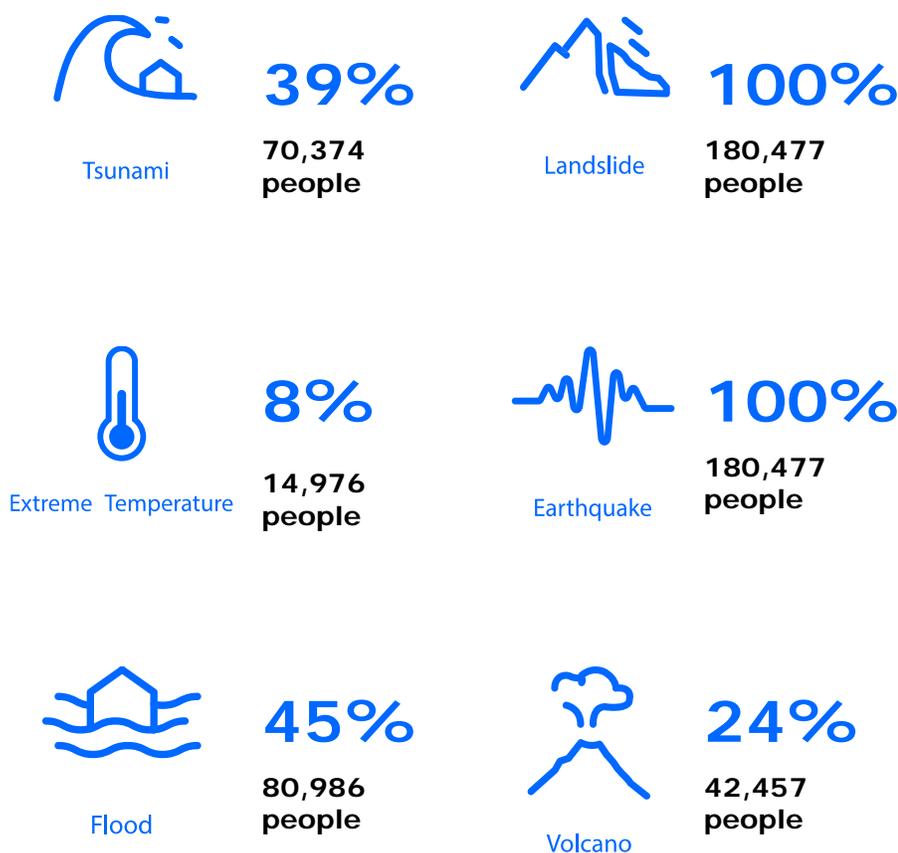


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.356, Rank = 20 of 25

Moquegua has low vulnerability relative to other Peruvian regions (V = 0.356). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Moquegua is driven primarily by recent disaster impacts, population pressures, and gender inequality. The table below summarizes the individual indicators within each socio-economic theme.

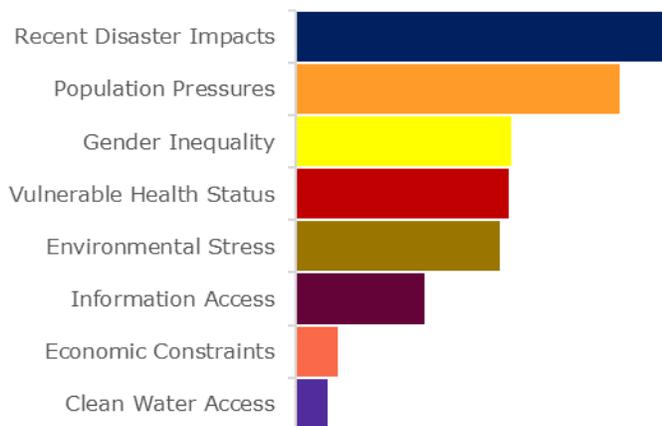


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	1.8 % of total regional area with irrigation-fed agriculture	8.3 % of total regional area with severe erosion				
	Vulnerable Health Status	13.3 Infant mortality rate per 1k births	101.5 Maternal deaths per 100k births	75.8 Average life expectancy (years) at birth	4.1 % of children under 5 years of age that are malnourished	6.6 % of population with 1 or more disability	
	Clean Water Vulnerability	96.4 % households with access to improved water	83.1 % households with access to flush toilets				
	Information Access Vulnerability	4.8 % of population 15yrs and older that are illiterate	10.3 Average years of schooling	83.6 % primary school enrollment	22.0 % households with internet	87.2 % households with television	87.6 % households with radio
	Economic Constraints	0.44 Ratio of dependents to working age population (15-64 years)	44.31 Ratio of average monthly household expenses to income	8.7 % of population monetarily impoverished			
	Gender Inequality	0.47 Proportion of female representatives in local government	0.79 Ratio of female to male secondary enrollment	0.79 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.1
% Average annual population change (2010-2015)



Recent Disaster Impacts

945.0
Average annual hazard-related deaths per 10k persons (2010-2014)

8.4
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.594, Rank = 5 of 25

Moquegua has a very high coping capacity relative to other regions (CC = 0.594). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Moquegua is hindered primarily by its environmental capacity and governance. The table below summarizes the individual indicators within each socio-economic theme.

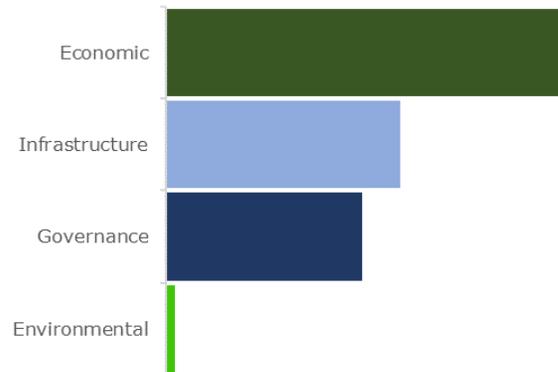


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,824
Average monthly income (\$)

\$47,564
Gross domestic product per capita



Governance

2.52
Registered cases of sexual violence per 10k persons

3.36
Registered cases of missing persons per 10k persons

0.015
Average annual number of social conflicts per 10k persons (active and resolved)

7,282
of voters per 10k persons (2014 election)



Environmental Capacity

0.8
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	20.8 # of hospital beds per 10k persons	30.4 # of nurses per 10k persons	14.9 # of physicians per 10k persons
	Communications Capacity	15.4 % households with fixed phone line	83.9 % households with mobile phone	
	Transportation Capacity	1.7 Port/airport density per 10,000 sq km	1,710.5 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.619, Rank = 5 of 25

Resilience is a function of both vulnerability and coping capacity. Moquegua’s resilience is higher than the national average, and its very high Resilience Score (R = 0.619) is due to its low vulnerability and very high coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Moquegua, 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.



Recent Disaster Impacts



Governance



Environmental Capacity

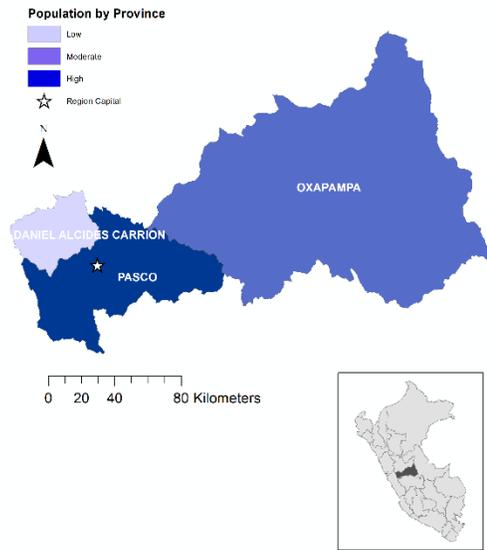
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Pasco



Region Capital: Cerro de Pasco
 Region Area: 24,858 km²

Pasco is one of twenty-five regions in Peru. Located in central Peru, Pasco is east of Lima in the rugged highlands of the Cordilleras. Mining is the predominate economic activity. Cerro de Pasco is the region’s capital, and the highest city in Peru at 14,200 feet. As of 2015, the region’s population was estimated at 304,158; with the highest percentage of its population residing in the province of Pasco. Relative to the rest of Peru, the population of Pasco has lower than average life expectancy (71.4 years) and access to improved water (65.9%). Additionally, while Pasco has lower than average illiteracy (6.3%), poverty (46.6%) remains higher than the national average.



Multi-Hazard Risk (MHR) ¹

Score = 0.456, Rank = 15 of 25

Of the twenty-five regions of Peru, Pasco ranks 15th in multi-hazard risk (MHR = 0.456). Table 1 outlines the individual components that contribute to risk. As shown, Pasco’s moderate multi-hazard risk is a function of its low multi-hazard exposure (MHE = 0.399), high vulnerability (V = 0.498), and high coping capacity (CC = 0.528). The ternary graph at right shows that Pasco’s exposure is somewhat lower than the national average, vulnerability is slightly higher, and lack of coping capacity very close to the national average.

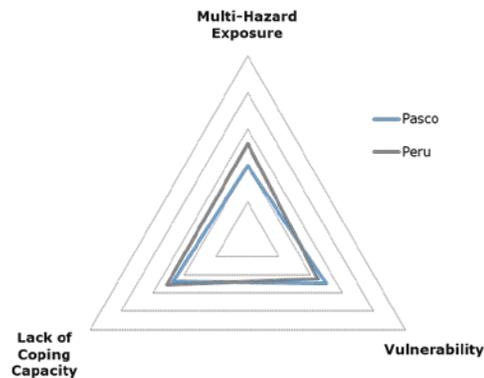
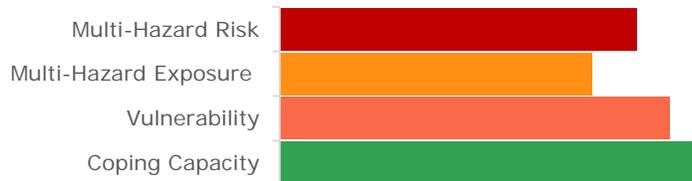


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Low		High		High	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.399	19	0.498	8	0.528	8

Multi-Hazard Exposure (MHE) ³

Score = 0.399, Rank = 19 of 25

Pasco has low multi-hazard exposure relative to other regions of Peru (MHE = 0.399). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

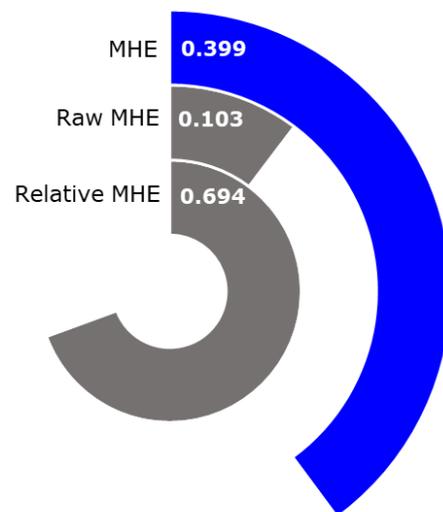
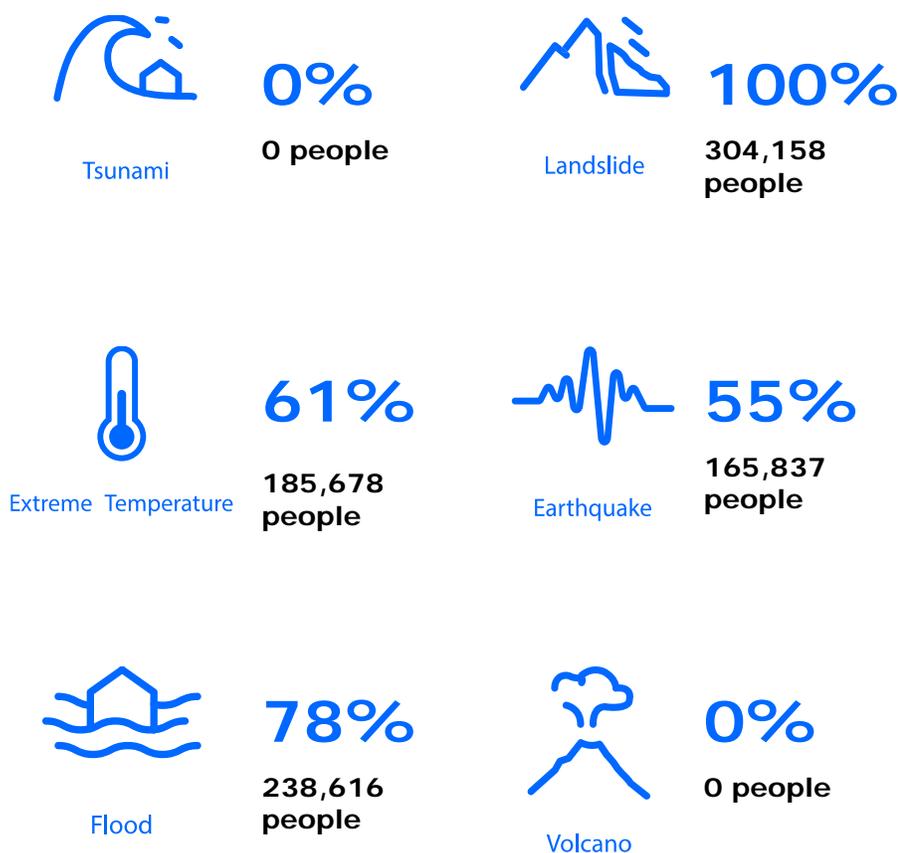


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.498, Rank = 8 of 25

Pasco has high vulnerability relative to other Peruvian regions (V = 0.498). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Pasco is driven primarily by clean water access, gender inequality, and information access. The table below summarizes the individual indicators within each socio-economic theme.

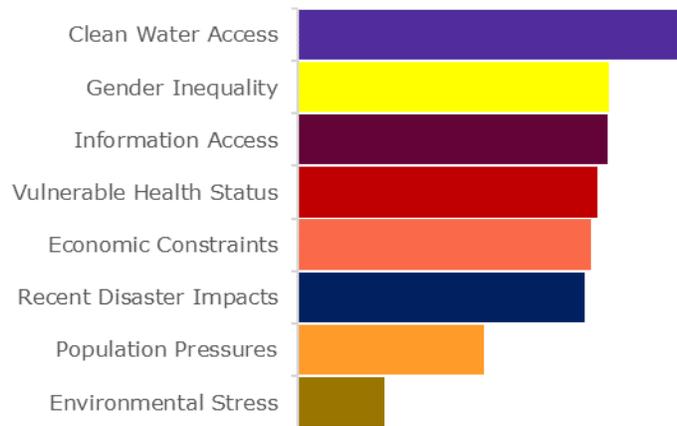


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	0.1 % of total regional area with irrigation-fed agriculture	2.6 % of total regional area with severe erosion				
	Vulnerable Health Status	21.0 Infant mortality rate per 1k births	70.0 Maternal deaths per 100k births	71.4 Average life expectancy (years) at birth	26.5 % of children under 5 years of age that are malnourished	4.9 % of population with 1 or more disability	
	Clean Water Vulnerability	65.9 % households with access to improved water	48.9 % households with access to flush toilets				
	Information Access Vulnerability	6.3 % of population 15yrs and older that are illiterate	9.4 Average years of schooling	63.1 % primary school enrollment	5.0 % households with internet	75.5 % households with television	82.0 % households with radio
	Economic Constraints	0.58 Ratio of dependents to working age population (15-64 years)	49.30 Ratio of average monthly household expenses to income	46.6 % of population monetarily impoverished			
	Gender Inequality	0.47 Proportion of female representatives in local government	0.73 Ratio of female to male secondary enrollment	0.78 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.8
% Average annual population change (2010-2015)



Recent Disaster Impacts

994.1
Average annual hazard-related deaths per 10k persons (2010-2014)

2.1
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.528, Rank = 8 of 25

Pasco has a high coping capacity relative to other regions (CC = 0.528). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Pasco is hindered primarily by its economic and infrastructure (especially communications) capacities. The table below summarizes the individual indicators within each socio-economic theme.

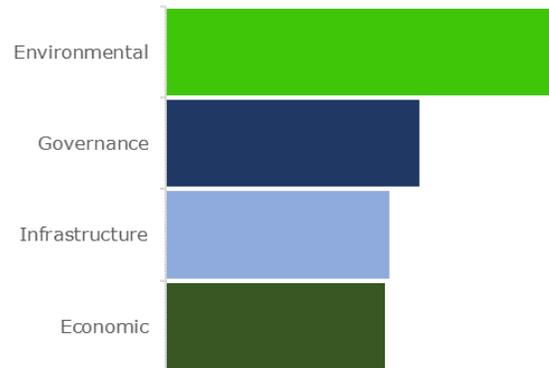


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$866
Average monthly income (\$)

\$18,458
Gross domestic product per capita



Governance

0.30
Registered cases of sexual violence per 10k persons

0.13
Registered cases of missing persons per 10k persons

0.021
Average annual number of social conflicts per 10k persons (active and resolved)

6,070
of voters per 10k persons (2014 election)



Environmental Capacity

26.6
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	20.9 # of hospital beds per 10k persons	22.6 # of nurses per 10k persons	6.9 # of physicians per 10k persons
	Communications Capacity	2.7 % households with fixed phone line	82.8 % households with mobile phone	
	Transportation Capacity	4.4 Port/airport density per 10,000 sq km	1,238.7 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.515, Rank = 15 of 25

Resilience is a function of both vulnerability and coping capacity. Pasco’s resilience is comparable to the national average, and its moderate Resilience Score (R = 0.515) is due to its high vulnerability and high coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Pasco, 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



Clean Water Access



Communications Capacity

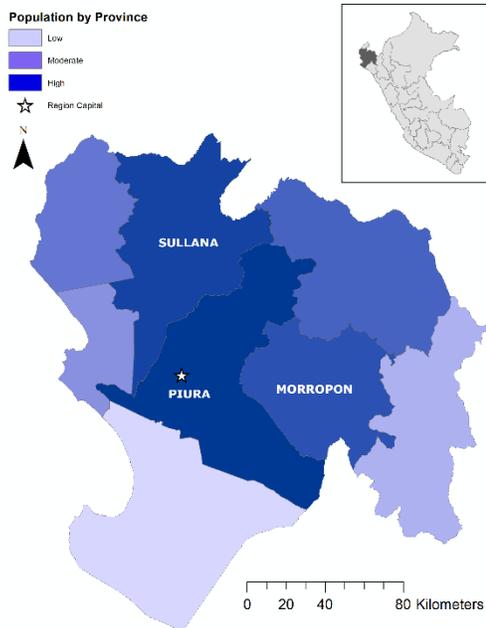
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Piura



Region Capital: Piura
Region Area: 36,313 km²

Piura is one of twenty-five regions in Peru. Located in northern coastal Peru, service industries, manufacturing and commerce are the predominate economic activities. Piura is the region’s capital. As of 2015, the region’s population was estimated at 1,844,129; with the highest percentage of its population residing in the provinces of Morropon, Piura and Sullana. Relative to the rest of Peru, the population of Piura has higher than average life expectancy (74.0 years) and lower than average illiteracy (7.7%). Piura also has higher than average poverty (35.1%) and lower than average access to improved water (82.1%) compared to national averages.



Multi-Hazard Risk (MHR) ¹

Score = 0.587, Rank = 6 of 25

Of the twenty-five regions of Peru, Piura ranks 6th in multi-hazard risk (MHR = 0.587). Table 1 outlines the individual components that contribute to risk. As shown, Piura’s high multi-hazard risk is a function of its high multi-hazard exposure (MHE = 0.704), high vulnerability (V = 0.512), and moderate coping capacity (CC = 0.455). The ternary graph at right shows that Piura’s exposure is higher than the national average, its vulnerability is slightly higher, and lack of coping capacity close to the national averages for these components.

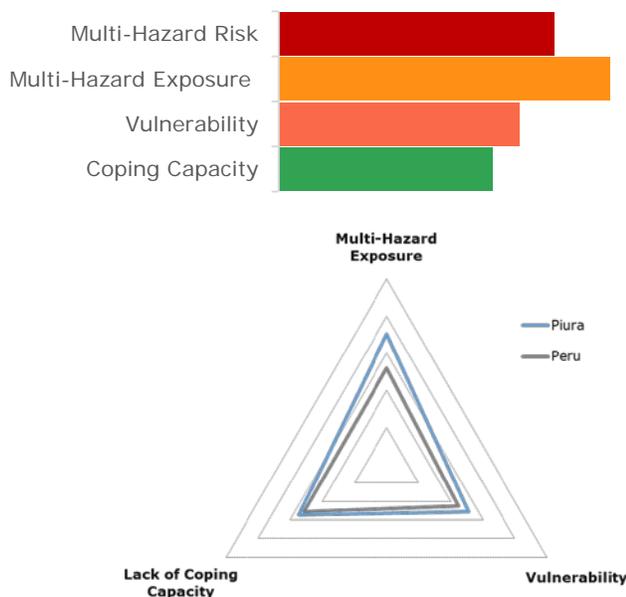


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
High		High		Moderate	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.704	6	0.512	7	0.455	15

Multi-Hazard Exposure (MHE) ³

Score = 0.704, Rank = 6 of 25

Piura has high multi-hazard exposure relative to other regions of Peru (MHE = 0.704). Percentages of the region’s population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

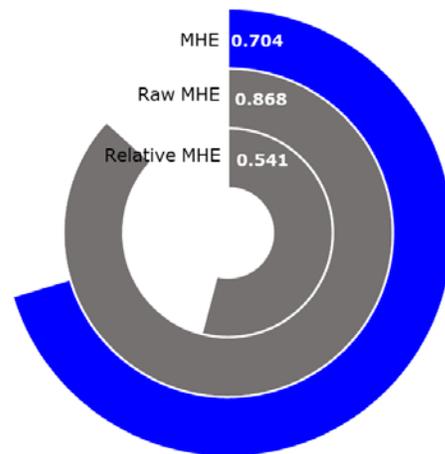
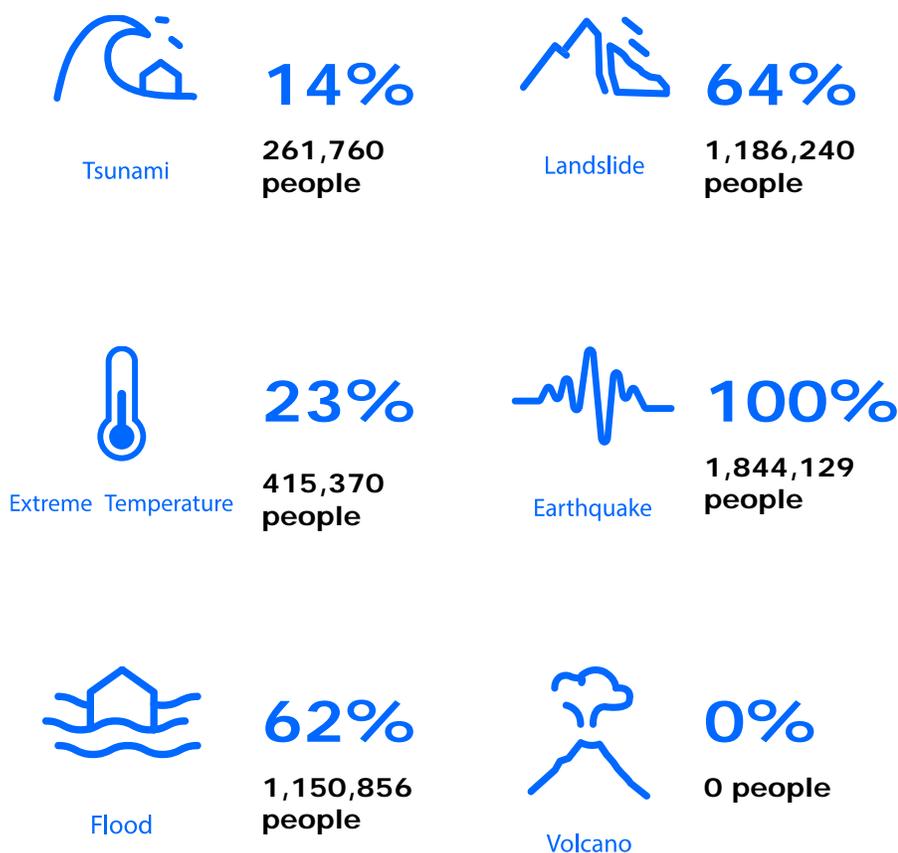


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.512, Rank = 7 of 25

Piura has high vulnerability relative to other Peruvian regions (V = 0.512). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Piura is driven primarily by environmental stress, gender inequality, and economic constraints. The table below summarizes the individual indicators within each socio-economic theme.

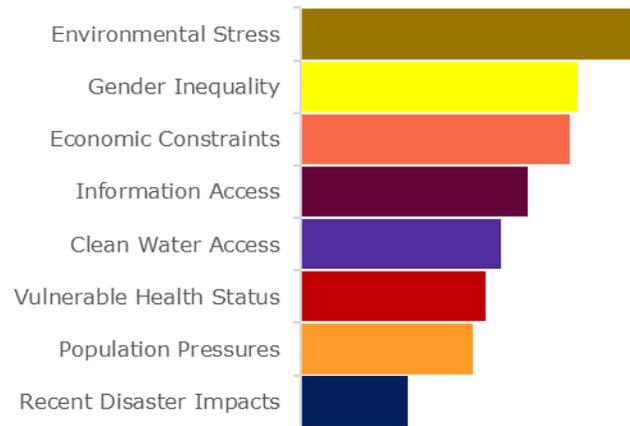


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	7.2 % of total regional area with irrigation-fed agriculture	32.7 % of total regional area with severe erosion				
	Vulnerable Health Status	18.8 Infant mortality rate per 1k births	60.9 Maternal deaths per 100k births	74.0 Average life expectancy (years) at birth	24.9 % of children under 5 years of age that are malnourished	4.6 % of population with 1 or more disability	
	Clean Water Vulnerability	82.1 % households with access to improved water	54.1 % households with access to flush toilets				
	Information Access Vulnerability	7.7 % of population 15yrs and older that are illiterate	9.0 Average years of schooling	72.7 % primary school enrollment	13.8 % households with internet	80.6 % households with television	75.2 % households with radio
	Economic Constraints	0.57 Ratio of dependents to working age population (15-64 years)	63.71 Ratio of average monthly household expenses to income	35.1 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.88 Ratio of female to male secondary enrollment	0.69 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.8
% Average annual population change (2010-2015)



Recent Disaster Impacts

118.4 Average annual hazard-related deaths per 10k persons (2010-2014)
1.3 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.455, Rank = 15 of 25

Piura has a moderate coping capacity relative to other regions (CC = 0.455). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Piura is hindered primarily by its environmental and economic capacities. The table below summarizes the individual indicators within each socio-economic theme.

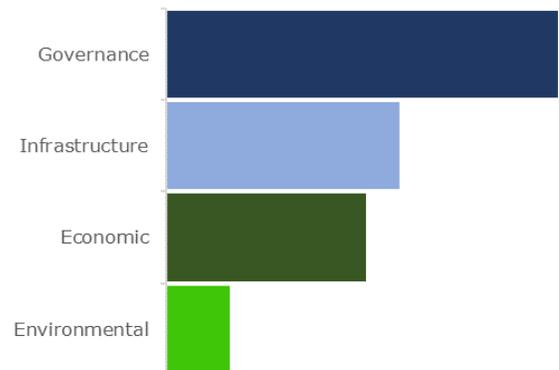


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$890 Average monthly income (\$)
\$13,850 Gross domestic product per capita



Governance

1.5 Registered cases of sexual violence per 10k persons
1.15 Registered cases of missing persons per 10k persons
0.006 Average annual number of social conflicts per 10k persons (active and resolved)
6,706 # of voters per 10k persons (2014 election)



Environmental Capacity

3.5 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	10.9 # of hospital beds per 10k persons	10.4 # of nurses per 10k persons	8.7 # of physicians per 10k persons
	Communications Capacity	15.6 % households with fixed phone line	82.5 % households with mobile phone	
	Transportation Capacity	1.1 Port/airport density per 10,000 sq km	1,743.5 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.471, Rank = 18 of 25

Resilience is a function of both vulnerability and coping capacity. Piura’s resilience is lower than the national average, and its low Resilience Score (R = 0.471) is due to its high vulnerability and moderate coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Piura, 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.



Environmental Stress



Economic Capacity



Gender Inequality

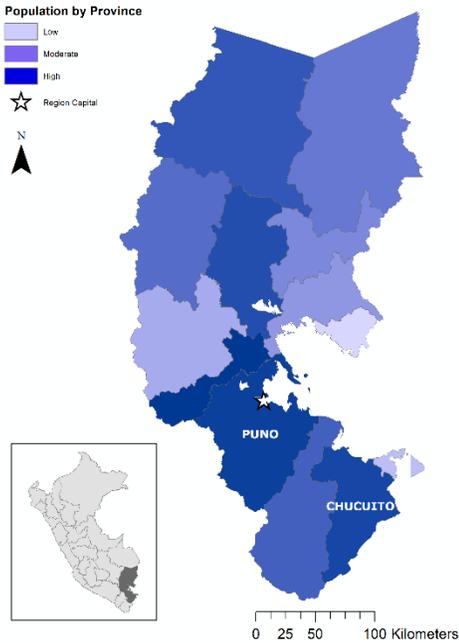
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.

A photograph of a large, snow-capped mountain peak, likely in the Andes, reflected in a calm body of water. The sky is a clear, deep blue. The foreground shows a grassy plain and the water's surface, which perfectly mirrors the mountain and sky.

Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Puno



Region Capital: Puno
 Region Area: 72,690 km²

Puno is one of twenty-five regions in Peru. Located in the southeast interior of Peru, Puno is bordered by Bolivia and encompasses a geographical region known as the altiplano, home to Lake Titicaca, the world’s highest navigable lake. Service industries (e.g., tourism), agriculture and livestock production, as well as commerce are the predominate economic activities. Puno is the region’s capital. As of 2015, the region’s population was estimated at 1,415,608; with the highest percentage residing in the provinces of Chucuito, Puno and San Romain. Relative to the rest of Peru, the population of Puno has lower than average life expectancy (70.5 years) and access to improved water (66.9%). Puno also has higher than average poverty (32.4%) and illiteracy (10.5%).



Multi-Hazard Risk (MHR) ¹

Score = 0.594, Rank = 4 of 25

Of the twenty-five regions of Peru, Puno ranks 4th in multi-hazard risk (MHR = 0.594). Table 1 outlines the individual components that contribute to risk. As shown, Puno’s very high multi-hazard risk is a function of its moderate multi-hazard exposure (MHE = 0.597), very high vulnerability (V = 0.557), and very low coping capacity (CC = 0.373). The ternary graph at right shows that Puno’s exposure, vulnerability, and lack of coping capacity exceed the national averages for these components.

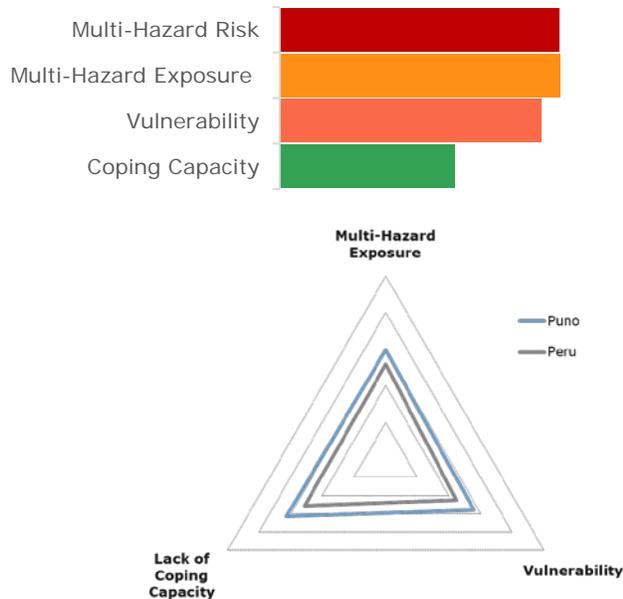


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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		Very High		Very Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.597	12	0.557	4	0.373	22

Multi-Hazard Exposure (MHE) ³

Score = 0.597, Rank = 12 of 25

Puno has moderate multi-hazard exposure relative to other regions of Peru (MHE = 0.597). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

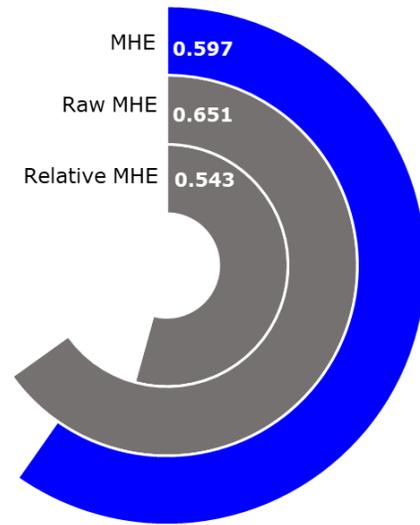
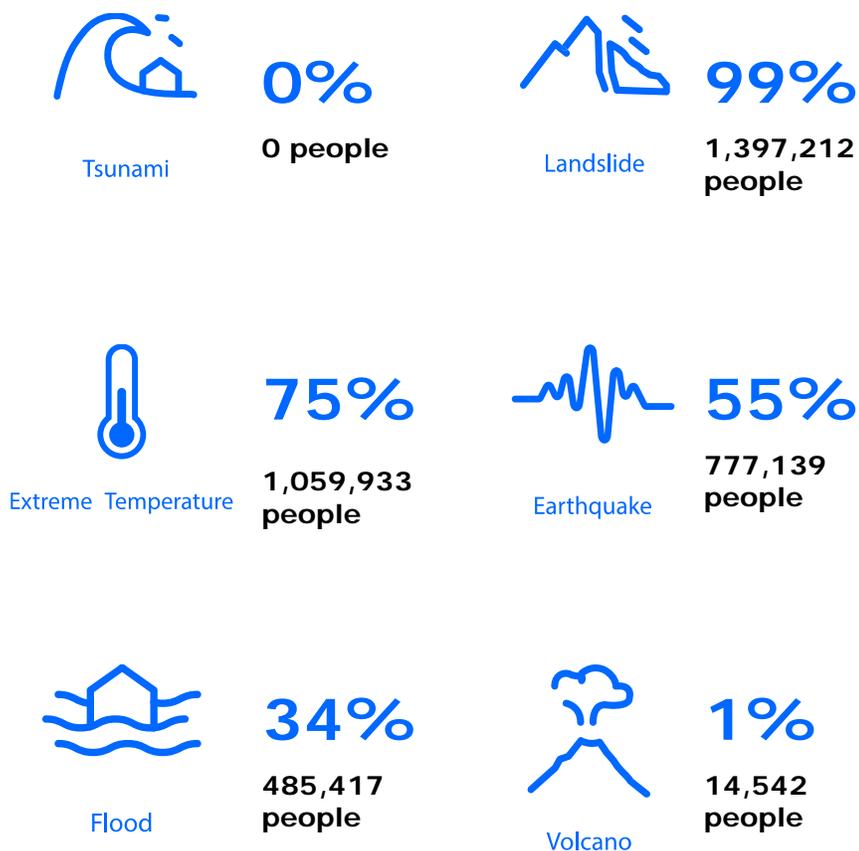


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.557, Rank = 4 of 25

Puno has very high vulnerability relative to other Peruvian regions (V = 0.557). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Puno is driven primarily by its vulnerable health status, clean water access, and recent disaster impacts. The table below summarizes the individual indicators within each socio-economic theme.

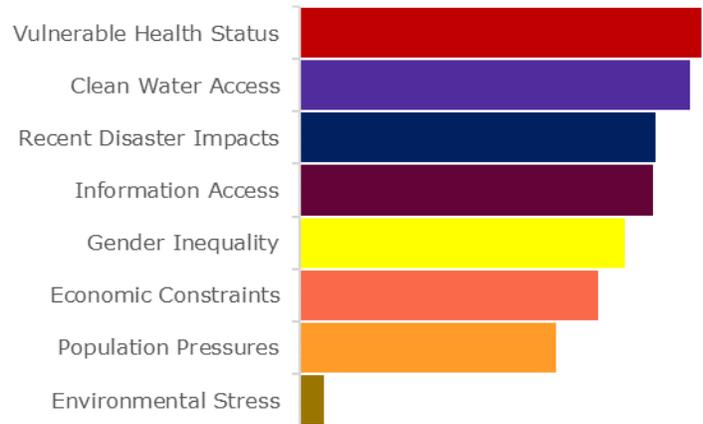


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	0.2 % of total regional area with irrigation-fed agriculture	0.0 % of total regional area with severe erosion				
	Vulnerable Health Status	30.2 Infant mortality rate per 1k births	111.7 Maternal deaths per 100k births	70.5 Average life expectancy (years) at birth	19.0 % of children under 5 years of age that are malnourished	5.9 % of population with 1 or more disability	
	Clean Water Vulnerability	66.9 % households with access to improved water	54.0 % households with access to flush toilets				
	Information Access Vulnerability	10.5 % of population 15yrs and older that are illiterate	9.1 Average years of schooling	61.4 % primary school enrollment	6.3 % households with internet	63.5 % households with television	88.0 % households with radio
	Economic Constraints	0.62 Ratio of dependents to working age population (15-64 years)	54.89 Ratio of average monthly household expenses to income	32.4 % of population monetarily impoverished			
	Gender Inequality	0.50 Proportion of female representatives in local government	0.56 Ratio of female to male secondary enrollment	0.95 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

0.9
% Average annual population change (2010-2015)



Recent Disaster Impacts

972.3 Average annual hazard-related deaths per 10k persons (2010-2014)

6.5 Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.373, Rank = 22 of 25

Puno has a very low coping capacity relative to other regions (CC = 0.373). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Puno is hindered primarily by its economic and infrastructure (especially healthcare) capacities. The table below summarizes the individual indicators within each socio-economic theme.

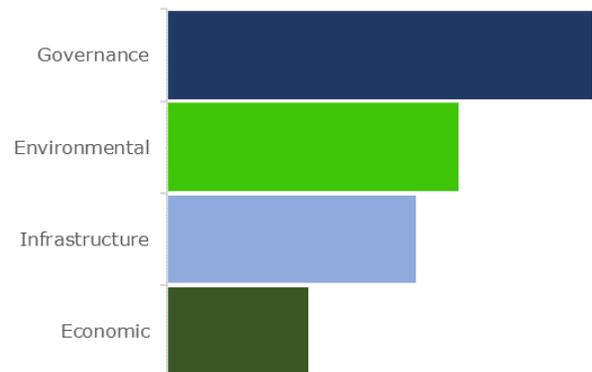


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$880 Average monthly income (\$)

\$8,594 Gross domestic product per capita



Governance

0.48 Registered cases of sexual violence per 10k persons

4.11 Registered cases of missing persons per 10k persons

0.010 Average annual number of social conflicts per 10k persons (active and resolved)

5,997 # of voters per 10k persons (2014 election)



Environmental Capacity

11.9 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	9.9 # of hospital beds per 10k persons	19.3 # of nurses per 10k persons	8.0 # of physicians per 10k persons
	Communications Capacity	3.5 % households with fixed phone line	78.0 % households with mobile phone	
	Transportation Capacity	1.1 Port/airport density per 10,000 sq km	1,524.1 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.408, Rank = 22 of 25

Resilience is a function of both vulnerability and coping capacity. Puno’s resilience is significantly lower than the national average, and its very low Resilience Score (R = 0.408) is due to its very high vulnerability and very low coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Puno, 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



Clean Water Vulnerability



Healthcare Capacity

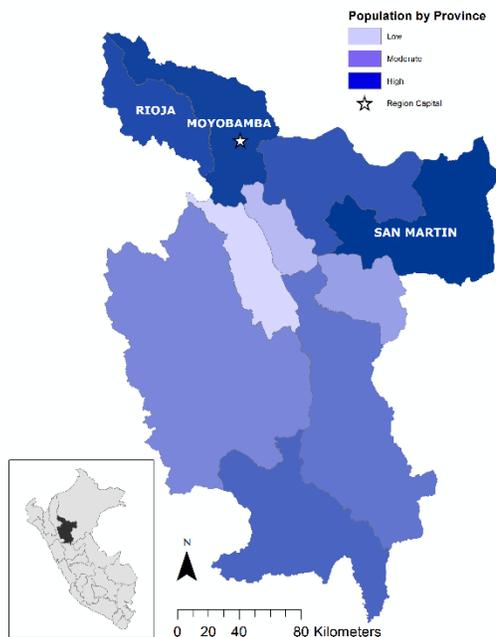
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: San Martín



Region Capital: Myobamba
 Region Area: 52,073 km²

San Martín is one of twenty-five regions in Peru. Located in the northern interior of Peru, San Martín has an economy largely dominated by agriculture, animal husbandry and forestry, followed by service industries. Myobamba is the region capital. As of 2015, the region's population was estimated at 840,790; with the highest percentage of its population residing in the northern provinces of Moyobamba, Rioja and San Martín. Relative to the rest of Peru, the population of San Martín has lower than average life expectancy (71.3 years) and access to improved water (78.1%). San Martín also has higher than average poverty (30.0%) and illiteracy (8.1%).



Multi-Hazard Risk (MHR) ¹

Score = 0.565, Rank = 7 of 25

Of the twenty-five regions of Peru, San Martín ranks 7th in multi-hazard risk (MHR = 0.565). Table 1 outlines the individual components that contribute to risk. As shown, San Martín's high multi-hazard risk is a function of its very high multi-hazard exposure (MHE = 0.754), low vulnerability (V = 0.404), and moderate coping capacity (CC = 0.464). The ternary graph at right shows that San Martín's exposure is significantly higher than the national average, while vulnerability and lack of coping capacity are close to the national averages for these components.

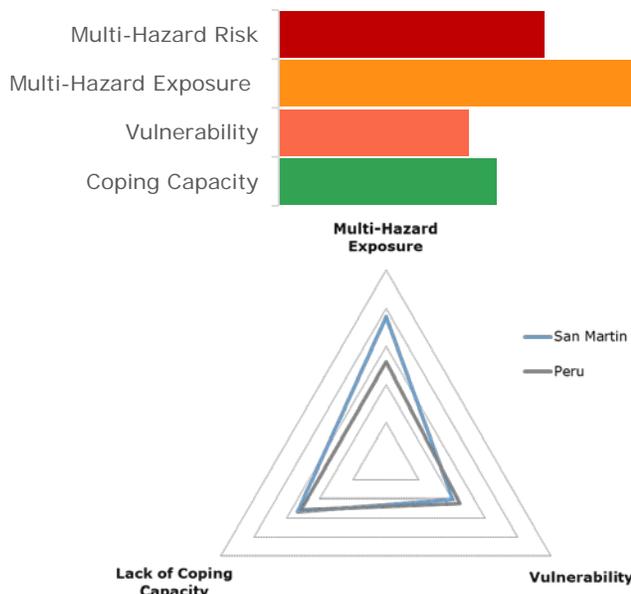


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region's normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Very High		Low		Moderate	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.754	4	0.404	16	0.464	14

Multi-Hazard Exposure (MHE) ³

Score = 0.754, Rank = 4 of 25

San Martín has very high multi-hazard exposure relative to other regions of Peru (MHE = 0.754). Percentages of the region's population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

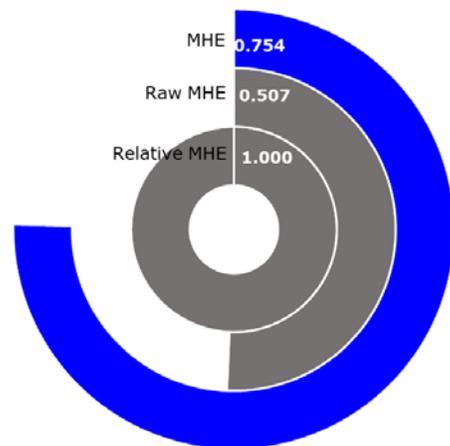
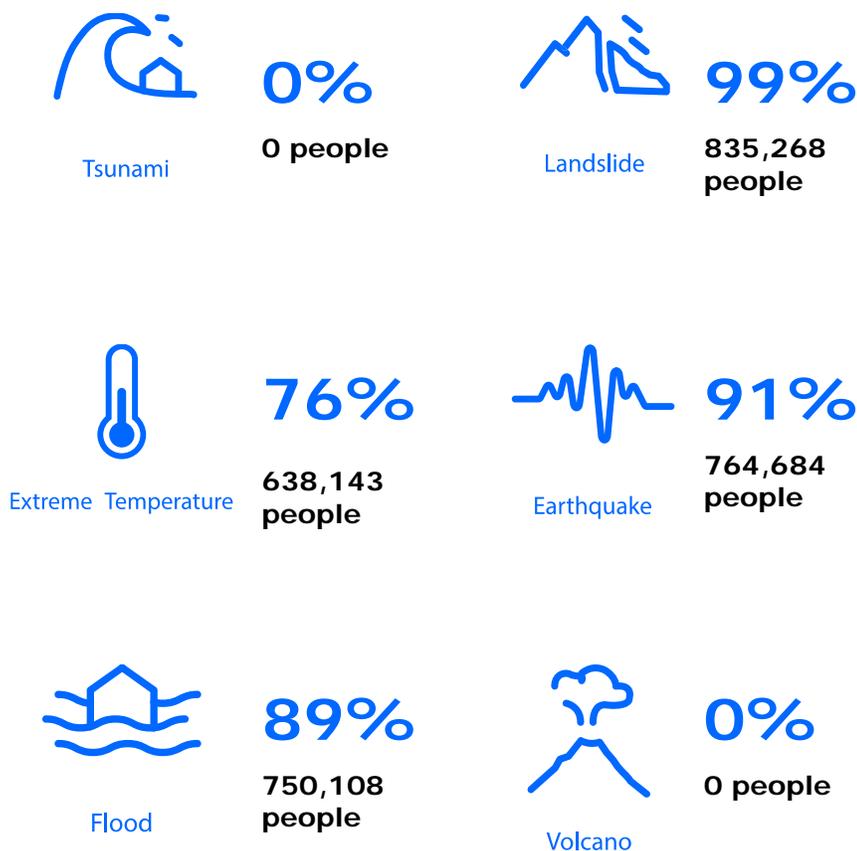


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² MHR = (MHE + V + (1-CC))/3.

³ Multi-Hazard Exposure: Average exposure of the population to hazards.

⁴ Ambient Population: 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.404, Rank = 16 of 25

San Martín has low vulnerability relative to other Peruvian regions (V = 0.404). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in San Martín is driven primarily by clean water access, gender inequality, and information access. The table below summarizes the individual indicators within each socio-economic theme.

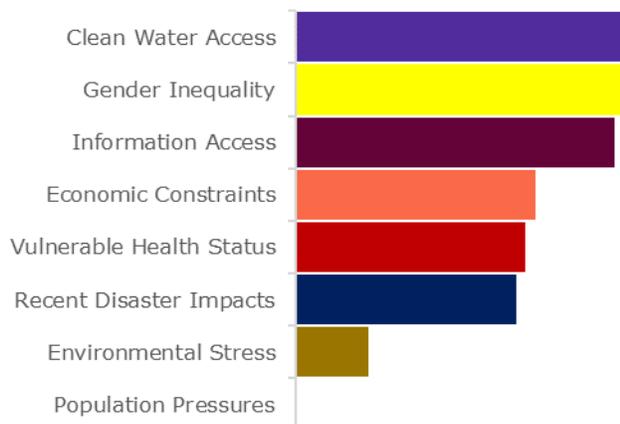


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	1.0 % of total regional area with irrigation-fed agriculture	0.1 % of total regional area with severe erosion				
	Vulnerable Health Status	19.2 Infant mortality rate per 1k births	73.1 Maternal deaths per 100k births	71.3 Average life expectancy (years) at birth	15.5 % of children under 5 years of age that are malnourished	3.8 % of population with 1 or more disability	
	Clean Water Vulnerability	78.1 % households with access to improved water	40.3 % households with access to flush toilets				
	Information Access Vulnerability	8.1 % of population 15yrs and older that are illiterate	8.3 Average years of schooling	77.5 % primary school enrollment	9.2 % households with internet	72.9 % households with television	70.9 % households with radio
	Economic Constraints	0.53 Ratio of dependents to working age population (15-64 years)	55.43 Ratio of average monthly household expenses to income	30.0 % of population monetarily impoverished			
	Gender Inequality	0.46 Proportion of female representatives in local government	0.73 Ratio of female to male secondary enrollment	0.69 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

-0.4
% Average annual population change (2010-2015)



Recent Disaster Impacts

332.3
Average annual hazard-related deaths per 10k persons (2010-2014)

3.1
Average annual number of homes destroyed by recent hazards per 10k persons (2010-2014)

Coping Capacity (CC) ⁶

Score = 0.464, Rank = 14 of 25

San Martín has a moderate coping capacity relative to other regions (CC = 0.464). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in San Martín is hindered primarily by its economic and infrastructure (especially healthcare) capacities. The table below summarizes the individual indicators within each theme.

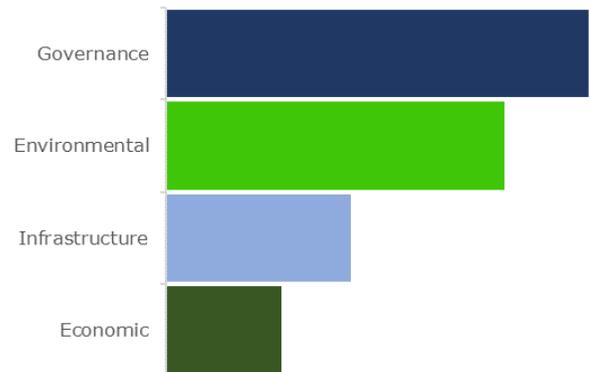


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$967
Average monthly income (\$)

\$7,752
Gross domestic product per capita



Governance

2.06
Registered cases of sexual violence per 10k persons

0.04
Registered cases of missing persons per 10k persons

0.003
Average annual number of social conflicts per 10k persons (active and resolved)

6,576
of voters per 10k persons (2014 election)



Environmental Capacity

18.5
% protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	12.6 # of hospital beds per 10k persons	8.6 # of nurses per 10k persons	5.2 # of physicians per 10k persons
	Communications Capacity	8.2 % households with fixed phone line	81.3 % households with mobile phone	
	Transportation Capacity	1.0 Port/airport density per 10,000 sq km	1,001.3 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.530, Rank = 12 of 25

Resilience is a function of both vulnerability and coping capacity. San Martín’s resilience is near the national average, and its moderate Resilience Score (R = 0.530) is due to its low vulnerability and moderate coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In San Martín, 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.



Gender Inequality



Healthcare Capacity



Transportation Capacity

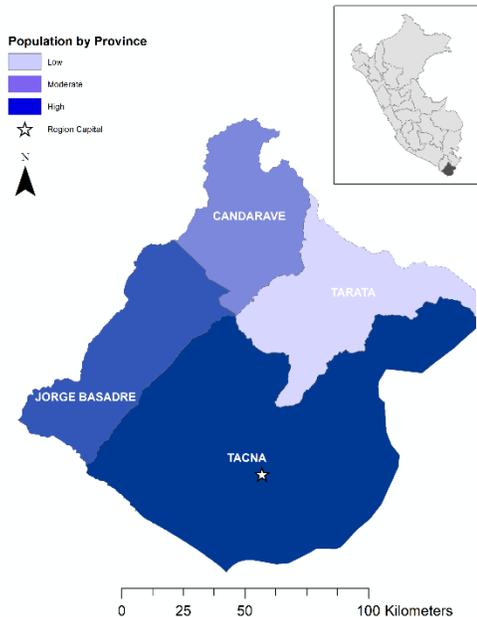
⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.



Peru: Regional Profiles

National Disaster Preparedness Baseline Assessment

Region: Tacna



Region Capital: Tacna
Region Area: 17,712 km²

Tacna is one of twenty-five regions in Peru. Located in southern coastal Peru, Tacna is a desert region sharing a border with Chile, and driven by an economy focused primarily on mining, service industries and commerce. As of 2015, the region’s population was estimated at 341,838; with the highest percentage of its population residing in the province of Tacna, and the region’s capital. Relative to the rest of Peru, the population of Tacna has higher than average life expectancy (74.2 years) and access to improved water (92.5%), while having lower than average poverty (11.8%) and illiteracy (3.4%).



Multi-Hazard Risk (MHR) ¹

Score = 0.437, Rank = 18 of 25

Of the twenty-five regions of Peru, Tacna ranks 18th in multi-hazard risk (MHR = 0.437). Table 1 outlines the individual components that contribute to risk. As shown, Tacna’s low multi-hazard risk is a function of its low multi-hazard exposure (MHE = 0.400), very low vulnerability (V = 0.346), and low coping capacity (CC = 0.434). The ternary graph at right shows that both Tacna’s exposure and vulnerability are somewhat lower than the national averages for these components, while lack of coping capacity is slightly higher.

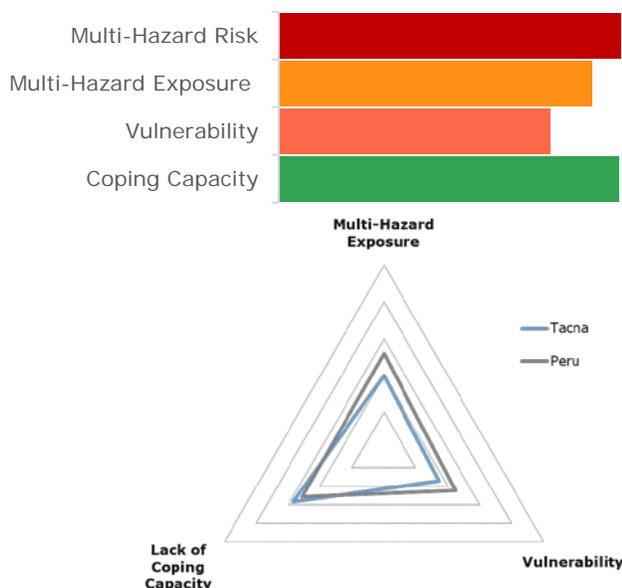


Figure 1. Components of the Multi-Hazard Risk Score compared to the national average.

¹ **Multi-Hazard Risk:** The likelihood of losses or disruptions to a region’s normal function due to interaction between multi-hazard exposure, socioeconomic vulnerability and coping capacity.

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)	
Low		Very Low		Low	
Score	Rank (of 25)	Score	Rank (of 25)	Score	Rank (of 25)
0.400	18	0.346	22	0.434	17

Multi-Hazard Exposure (MHE) ³

Score = 0.400, Rank = 18 of 25

Tacna has low multi-hazard exposure relative to other regions of Peru (MHE = 0.400). Percentages of the region’s population exposed to varying hazards are summarized below.

Table 2. Estimated ambient population⁴ exposed to each hazard type.

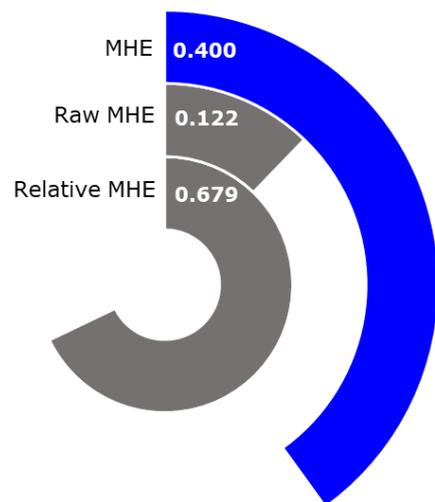
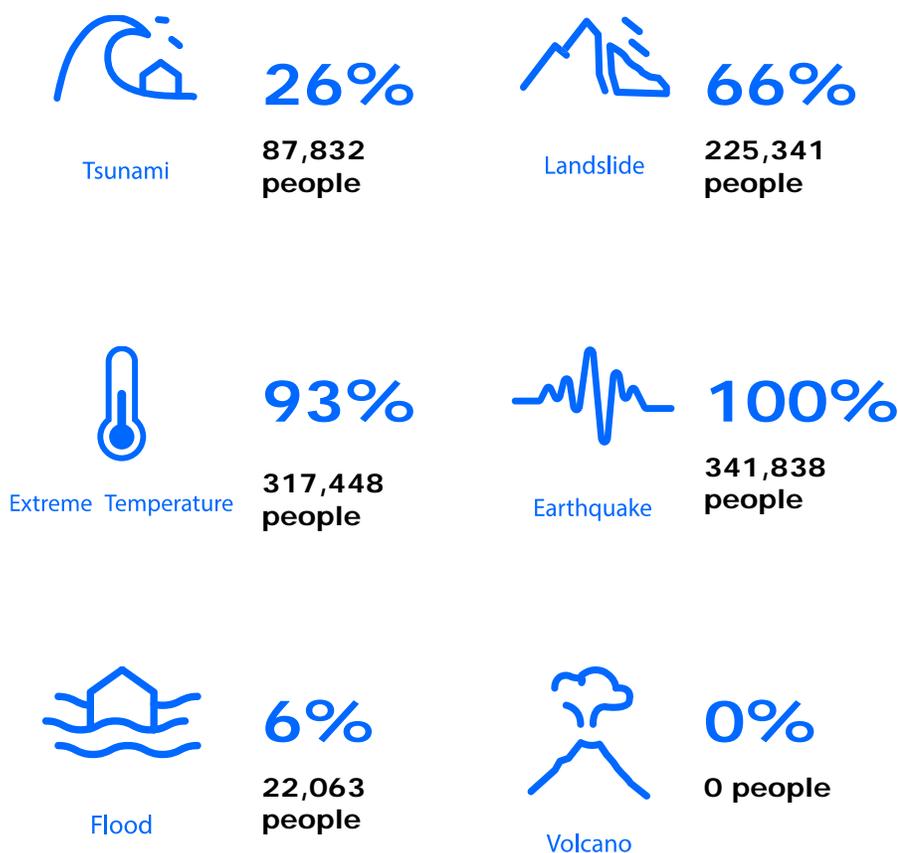


Figure 2. Average, raw and relative Multi-Hazard Exposure Scores.

² $MHR = (MHE + V + (1-CC))/3$.

³ **Multi-Hazard Exposure:** Average exposure of the population to hazards.

⁴ **Ambient Population:** 24-hour average estimate of the population; typically differs from census population.

Vulnerability (V) ⁵

Score = 0.346, Rank = 22 of 25

Tacna has very low vulnerability relative to other Peruvian regions (V = 0.346). The bar chart on the right displays the composition of its overall Vulnerability Score. As shown, vulnerability in Tacna is driven primarily by population pressures, environmental stress, and vulnerable health status. The table below summarizes the individual indicators within each socio-economic theme.

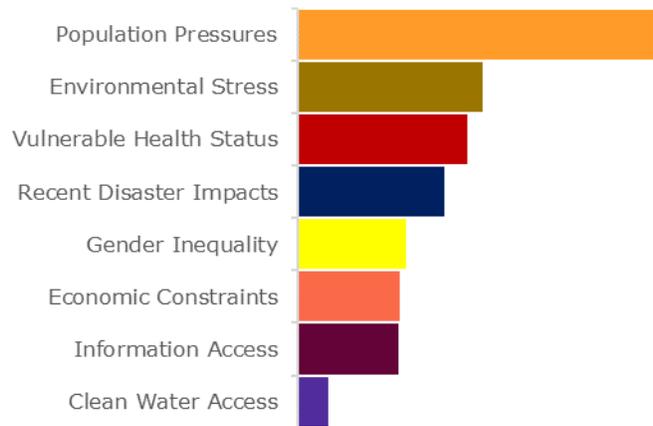


Figure 3. Components of the Vulnerability Score by relative contribution.

Table 3. Indicators of vulnerability grouped by theme.

	Environmental Stress	4.0 % of total regional area with irrigation-fed agriculture	5.9 % of total regional area with severe erosion				
	Vulnerable Health Status	13.2 Infant mortality rate per 1k births	89.2 Maternal deaths per 100k births	74.2 Average life expectancy (years) at birth	2.9 % of children under 5 years of age that are malnourished	6.2 % of population with 1 or more disability	
	Clean Water Vulnerability	92.5 % households with access to improved water	87.7 % households with access to flush toilets				
	Information Access Vulnerability	3.4 % of population 15yrs and older that are illiterate	10.5 Average years of schooling	73.1 % primary school enrollment	29.3 % households with internet	92.7 % households with television	87.3 % households with radio
	Economic Constraints	0.45 Ratio of dependents to working age population (15-64 years)	54.66 Ratio of average monthly household expenses to income	11.8 % of population monetarily impoverished			
	Gender Inequality	0.48 Proportion of female representatives in local government	0.80 Ratio of female to male secondary enrollment	0.86 Ratio of female to male labor participation			

⁵ **Vulnerability:** The socioeconomic conditions that are associated with susceptibility to disruptions in a region's normal functions.



Population Pressures

1.3
% Average annual population change (2010-2015)



Recent Disaster Impacts

234.1 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 = 0.434, Rank = 17 of 25

Tacna has a low coping capacity relative to other regions (CC = 0.434). The bar chart on the right displays the composition of its overall Coping Capacity Score. As shown, coping capacity in Tacna is hindered primarily by its environmental capacity and governance. The table below summarizes the individual indicators within each theme.

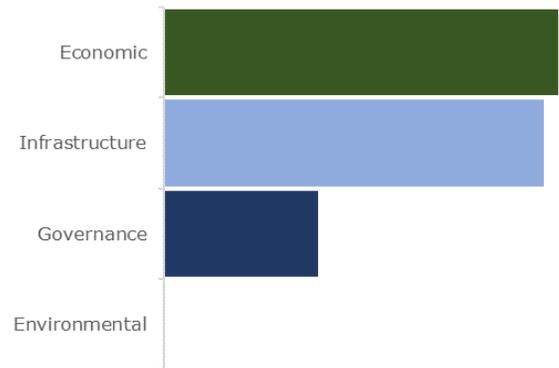


Figure 4. Components of the Coping Capacity Score by relative contribution.

Table 4. Indicators of coping capacity grouped by theme.



Economic Capacity

\$1,295 Average monthly income (\$)

\$19,439 Gross domestic product per capita



Governance

3.94 Registered cases of sexual violence per 10k persons

20.35 Registered cases of missing persons per 10k persons

0.016 Average annual number of social conflicts per 10k persons (active and resolved)

7,295 # of voters per 10k persons (2014 election)



Environmental Capacity

0.0 % protected or reforested land

⁶ **Coping Capacity:** The systems, means and abilities of a region to absorb and respond to events that could potentially disrupt normal function.



Infrastructure Capacity

	Healthcare Capacity	16.8 # of hospital beds per 10k persons	27.9 # of nurses per 10k persons	28.1 # of physicians per 10k persons
	Communications Capacity	16.3 % households with fixed phone line	91.5 % households with mobile phone	
	Transportation Capacity	3.4 Port/airport density per 10,000 sq km	1,488.2 Road/rail density per 10,000 sq km	

Resilience (R) ⁷

Score = 0.544, Rank = 9 of 25

Resilience is a function of both vulnerability and coping capacity. Tacna’s resilience is higher than the national average, and its high Resilience Score (R = 0.544) is due to its very low vulnerability and low coping capacity. The region’s baseline indicators suggest a focus for resilience-building efforts. In Tacna, 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.



Population Pressures



Governance



Environmental Capacity

⁷ **Resilience** is a hazard-independent look at current socio-economic conditions affecting the short-term ability to absorb, respond to, and recover from disruptions to a region’s normal function.